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The
RUBBER AGE

225 Fourth Avenue, New York

VOL. XIX APRIL 10, 1926 No. 1

LITCHFIELD ELECTED PRESIDENT OF GOODYEAR TIRE & RUBBER CO.

First Vice President is Chosen to Succeed the Late Geo. M. Stadelman by Directors, Following Annual Stockholders' Meeting—With Goodyear Since 1900

Directors of the Goodyear Tire & Rubber Co., following the annual meeting of stockholders in Akron, March 29, elected Paul W. Litchfield, first vice president, to succeed the late George M. Stadelman as president. Frank K. Espenhain, vice president in charge of sales, was chosen first vice president, succeeding Mr. Litchfield, and was also elected to the board. E. G. Wilmer was re-elected chairman of the board, and C. F. Stone, C. E. Slusser and C. A. Stillman were made vice presidents.

Mr. Slusser will supervise production in all Goodyear factories outside Akron. William Stevens becomes production superintendent of the Akron plants. P. H. Hart was re-elected treasurer and William D. Schiltz was elected secretary.

Mr. Litchfield was born in Boston in 1875 and after being graduated from the Massachusetts Institute of Technology in 1896 was first employed by the Massachusetts Metropolitan Park Commission. Some six months later he entered L. C. Chase & Co., Boston, manufacturers of tire and carriage fabrics. On July 15, 1900, he joined the Goodyear Tire & Rubber Co. at a time when the chief products of the company were bicycle tires and miscellaneous rubber goods. He was appointed factory manager a short time later, and built the first Goodyear automobile tire with his own hands.

In recent years, Mr. Litchfield has been active in the development of the dirigible airship. It was through his recommendation that the Zeppelin patents were purchased in Germany and the Goodyear-Zeppelin Corp. subsequently established. He was also responsible for the recent purchase by Goodyear of several tire fabric plants.

Some of the things usually associated by rubber industry men, and particularly Goodyear men, with the name of Paul W. Litchfield are: The Arizona cotton plantation; the Far East rubber plantations; the Goodyear cotton mills; the development of the straight side tire; the pneumatic truck tire; airship development; the six-wheel truck; Goodyear Hall; the Goodyear Industrial Assembly; Goodyear Flying Squadron; and a working program as to the relations between management and men, as outlined in his book "The Industrial Republic" and carried out in the Akron plant.

PAUL W. LITCHFIELD

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MASON TIRE REPORTS $165,960 NET INCOME

The Mason Tire & Rubber Co., Kent, Ohio, recently reported for the year 1925 a net income of $165,960 after depreciation, interest and other charges. This is equal to $2.87 a share earned on $5,770,730 seven per cent cumulative preferred stock outstanding. It compares with a net loss of $48,561 in 1924.

Net sales were $9,436,567, as against $9,211,953 in 1924. Other income was $27,245, compared to $73,928 the previous year. Expenses and depreciation in 1925 totaled $8,859,981 and interest was $447,871. In 1924 the figures were $8,902,952 for expenses and depreciation and $431,490 for interest.

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AKRON PLANTS AGAIN CLOSE TO CAPACITIES

At least five of the rubber factories in the Akron district were close to capacities in tire and tube departments at the end of March. Average production seems to be about 80 per cent. The Goodyear Tire & Rubber Co. has replaced two eight-hour shifts on Saturdays and it is expected that the year 1926 will be the highest from point of production in the history of the company, although the factory operates on a very consistent production schedule.

The B. F. Goodrich Co. is working at about 80 per cent of capacity and is steadily increasing. The Miller Rubber Co. is also operating on an 80 per cent basis, according to Jacob Pfeiffer, president. March showed an increase of one-third over the output of February at the factorw of the General Tire & Robber Co., according to William O'Neil, president.

Seiberling Rubber Co. is operating at capacity and striving to better the figure. At this writing 100 casings a day were being added and it is expected that the factory will soon reach a daily output of 4,000.

Knight Tire Plant Sold

Sale of the Knight Tire & Rubber Co. factory on Marion Ave., Canton, Ohio, by the Republic Rubber Corp., to H. M. Naugle and Eugene Townsend was recently announced. The factory, which has been idle for two years, once employed 500 hands. It has 80,000 square feet of floor space and is built on a five-acre tract. The structure is a modern fireproof one which originally cost $400,000. It is expected that the factory will be used to manufacture steel wire.

Intercontinental Gains

In its report for 1925 the Intercontinental Rubber Co. shows a net profit of $51,213, after expenses and taxes, equivalent to 17 cents a share earned on $29,030,000 capital stock. In 1924 the concern sustained a net loss of $3,693.

The Intercontinental Rubber Products Corp. and subsidiaries report a net profit for 1925 of $925,325, after depreciation, interest, Federal taxes, etc., equal to $29.49 a share on 31,370 shares of no par capital stock, all of which is owned by the Intercontinental Rubber Co. This compares with $91,699, or $2.92 a share in 1924.

Total income of the Intercontinental Rubber Co. for 1925 was $60,221 and expenses and taxes totaled $9,008. Operating profit of the products corporation was $1,380,177. Expenses, taxes, discount, depreciation, amortization, interest and Federal taxes totaled $454,852 and after dividend payments of $55,000 a surplus remained of $870,325.

Directors of the Intercontinental Rubber Co. of Delaware were elected at a recent meeting held in New York City. They are: Henry A. Bingham, Charles A. Corliss, Charles Hayden, Grayson M. P. Murphy, Frederick Osborne and the retiring directors of the Intercontinental Rubber Products Co. which Intercontinental Rubber Co. has taken over.

India Declares Dividends

The India Tire & Rubber Co., Akron, paid a two percent dividend on common stock April 1 to stockholders of record of March 20. The same dates regarding recordation and payment apply to a 1¾ percent dividend on India 7 percent preferred stock, according to Secretary-Treasurer P. C. Searles. No statement was made concerning the proposal to split India $100 par value common in no-par stock. Rumors have been current that India stockholders would be asked to authorize issue of five no-par shares for each of the outstanding $100 shares.

India to Offer New Stock

Notices are being mailed to the stockholders of the India Tire & Rubber Co., Akron, calling attention to their rights to subscribe to the additional shares of 7 per cent preferred and no par common stock recently issued.

The new money obtained from the sale of the additional stock is to be used for additional working capital made necessary by the steady growth of the company's business, according to official statement. No plant expansion is contemplated at this time, it is further stated.

Stockholders may subscribe to units consisting of one share of 7 per cent preferred stock and two shares of no par common stock for $160. The right to subscribe is offered to stockholders of record at the close of business March 26.

It is reported that Borton & Borton of Cleveland, Ohio, have underwritten the unsubscribed stock, and that a public offering will be made shortly.

C. D. Wilson to Head Branch

The United States Rubber Co. recently announced the appointment of Claude D. Wilson as manager of the Indianapolis branch. Mr. Wilson was formerly district manager of the United States Tire Co. After the consolidation of the local branches of the United States Rubber Co., he was made manager of tires and sales and held this position until his recent appointment as Indianapolis branch manager. He will now have charge of rubber footwear and associated lines, druggists' sundries, mechanical goods and other products. Mr. Wilson joined the United States Tire Co. in 1916.

Pharis to Increase Output

With installation of new machinery completed, the Pharis Tire & Rubber Co., Newark, Ohio, plans to increase its production to 3,500 casings and tubes a day. The Pharis company is one of the most prosperous of the smaller Ohio companies, according to officials.

GOODRICH ANNOUNCES NEW CURING PROCESS

It was recently announced by the B. F. Goodrich Co., Akron, that the company's engineers had worked out a process by which vulcanization of rubber to metals is successfully accomplished. The process has been cristened "vulcalock." According to the announcement, the process may make radical changes in methods of solid tire construction and opens up a field hitherto untouched.

Experiments have demonstrated that a rubber coating applied by "vulcalock" will stick to metal surfaces under pressure of 700 pounds to the square inch. Engineers says that the process will be of particular advantage in coating products which are likely to be subjected to abrasive wear, inasmuch as the rubber coating is claimed to have a resistance 40 times greater than steel. The process is also valuable in the waterproofing of metallic articles.

Akron Notes

Harvey Firestone, president of the Firestone Tire & Rubber Co., returned to Akron Saturday April 3. from his Florida residence, Harbel Villa, Miami Beach. Firestone was accompanied by a staff of Firestone workers who have been with him in Florida.

* * *

Major Norman W. Peek of the United States Air Service has just assumed his duties in Akron as district manager of balloon inspection and production. He is stationed at the Goodyear Tire & Rubber Co. Major Peek succeeds Lieutenant Max F. Moyer, who will leave soon for a station in Panama. He left Akron a year ago for Scott Field, where he had been stationed.

* * *

The Goodyear Tire & Rubber Co. stepped into the breach in a drive for $500,000 for a new Childrens' Hospital in Akron last week in March, when the Directors of the company voted a donation of $50,000, putting the drive over its goal. The gift was made at the request of P. W. Litchfield, Goodyear's new president, who appeared before the directors in person in asking for the gift.

Notice

CASH paid for any quantity of SURPLUS or discontinued stocks of chemicals, intermediates, gums, glues, accelerators, oils, solvents, waxes, etc.

We pay highest prices. Send samples with full particulars.

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HIGH PRESSURE AND BALLOON TIRE SHIPMENTS DECLINED IN JANUARY

Rubber Association Figures Show That, Although Production of all Casings and Tubes Exceeded Shipments, Balloon Shipments Greatly Exceeded Those of Jan., 1925

A statistical bulletin recently issued by the Rubber Association of America, giving figures representing 75 per cent of the industry, shows that shipments of all casings and tubes declined in January. Balloon tire shipments totaled 1,000,490, against 1,167,658 in December and 563,315 in January, 1925. As balloon tires were a comparatively new development a year ago, these figures are more of an index to their growing popularity than to the general tire situation, inasmuch as shipments of high pressure cord casings were 1,045,302 in January, 1926, against 1,618,169 in the corresponding month last year.

January production of cord casings was 1,821,383, compared with 1,876,401 in December and 1,990,410 in January, 1925. Inventory was 4,453,490, against 3,723,296 in December and 3,562,701 in January, 1925. Production in January of high pressure inner tubes was 3,537,722, compared to 3,814,617 in December and 4,171,812 in January, 1925. Shipments were 1,706,680 in January, 1926, compared to 2,603,165 in the previous month and 3,643,841 in January, 1925. Inventory of high pressure inner tubes was 8,297,117, compared to 6,489,331 in December, and to 7,756,467 in January, 1925.

Shipments of balloon tubes also declined in January, totaling 1,085,352, against 1,140,054 in December and 528,533 in January of last year. Inventory was 2,473,366, compared to 1,995,277 in December and 920,728 in January, 1925. Production totaled 1,569,248 in contrast to 1,432,796 in December.

Shipments of solid and cushion tires in January were the lowest for any month in the last four years. Shipments totaled 34,361, against 67,935 in December and 44,814 in January, 1925. Production was only slightly higher, being 57,928, against 57,345 in December and 52,464 in January, 1925. Inventory was 170,674, against 148,080 in December and 196,774 in January, 1925.

In January, 13,197,979 lbs. of cotton fabric were consumed in casings; consumption of crude rubber in casings, tubes, solids and cushion tires was 44,527,984 lbs. Gasoline consumption was 720,358,000 gals. in January. Production of passenger cars totaled 282,483 in that month, and trucks, 32,511.

Factory Figures for January

	January	December	January 1925
ALL CASINGS			
Inventory	7,460,295	6,106,405	5,962,041
Production	3,640,576	3,569,999	3,554,757
Shipments	2,210,743	2,700,897	3,089,744
ALL TUBES			
Inventory	10,770,483	8,484,608	8,677,195
Production	5,106,970	5,249,413	4,757,055
Shipments	2,792,032	3,743,219	4,172,374
HIGH PRESSURE CORDS			
Inventory	4,453,490	3,723,296	3,562,701
Production	1,821,383	1,876,401	1,999,419
Shipments	1,045,302	1,265,593	1,618,169
BALLOONS			
Inventory	2,195,922	1,775,458	901,021
Production	1,416,409	1,288,965	546,146
Shipments	1,000,490	1,167,658	563,315
FABRICS			
Inventory	810,883	607,681	1,498,309
Production	421,784	404,633	1,009,201
Shipments	184,951	267,339	908,260
HIGH PRESSURE INNER TUBES			
Inventory	8,297,117	6,489,331	7,756,467
Production	3,537,722	3,814,617	4,171,812
Shipments	1,706,680	2,603,165	3,643,841
BALLOON INNER TUBES			
Inventory	2,473,366	1,995,277	920,728
Production	1,569,248	1,434,796	585,245
Shipments	1,085,352	1,140,054	528,533
SOLIDS AND CUSHIONS			
Inventory	170,674	148,080	196,774
Production	57,928	57,345	52,464
Shipments	34,461	67,935	44,814

Crown Tire Incorporated

The Crown Tire Corp., New York City, was recently chartered at Albany with an authorized capital of $100,000. The company will manufacture auto tires. Incorporators are E. S. Klauber, A. M. Hull, 30 Broad St.; and L. L. Clayton, 166 West 75th St., New York.

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A safer milling and handling ultra-accelerator for general use.

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Florida clay: unsurpassed as a cheap reinforcing material for tire treads and other products where high abrasion resistance is required.

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Accelerator for footwear and light colored mechanicals.

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Co-accelerator for lead in mold and steam cured goods.

LABELS
Multi-colored all-rubber labels for tires—belts—hose—footwear, etc.

SEMINOLE
CLAY
Georgia clay: very finely pulverized and of good color. Economical and safe for use in footwear, sundries and mechanical goods.

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New York City

CENTURY TO OPEN NEW SOUTHEASTERN DIVISION

According to William M. Burgess, sales manager of the Century Rubber Works, Cicero, Ill., who was in Atlanta, Ga., recently making arrangements, his company will open a southeastern division in the near future. With headquarters at 184 Spring St., Atlanta, the new division will have supervision over at least a dozen new branches in the southeast, including three in Georgia, he said. Lake Jones, formerly with the Goodyear Tire & Rubber Co., who has had 12 years experience in the territory, has been appointed southeastern manager.

Mr. Burgess said that he expected the southeastern division to do about $1,000,000 worth of business annually in bus and passenger car tires. He pointed to the steady increase in the business of the company.

"There was a 59 per cent increase for 1924 over 1923; a 62½ per cent increase in 1925 over 1924, and in the first two months of 1926 there has been a 64 per cent increase over the first two months of 1925," said Mr. Burgess.

"In Chicago we are building a new power house and adopting a special curing process. The Century Rubber Works have not laid off a man in four years."

Joins Akron Rubber Mold

Charles F. Safreed recently became associated with the Akron Rubber Mold & Machine Co., Akron, as assistant sales manager for a line of mills, calenders, presses, tube machines and general rubber mill machinery, as manufactured by the Allen Machine Co., Erie, Pa.

Mr. Safreed's friends will recall that he was formerly sales representative for the Adamson Machine Co., and previous to that was with the B. F. Goodrich Co., where he was associated with John R. Gammeter in the experimental engineering department for a number of years.

CHARLES F. SAFREED

Mixer Patented

David R. Bowen and Carl F. Schnuck, assignors to the Farrel Foundry & Machine Co., Ansonia, Conn., were recently granted U.S. Patent No. 1,561,903 on a machine for treating rubber. The mixer has a working chamber consisting of a single cylinder presenting a closed circumferentially extending cross-section at its middle portion and substantially throughout its length. A rotor for working the material back and forth against the inner surface of the cylinder and a gravity-feed hopper on the end of the cylinder leading directly into it are provided.

INDIA STOCKHOLDERS VOTE TO SPLIT COMMON

Stockholders of the India Tire & Rubber Co., at a meeting held recently approved the splitting of the $100 par common to no par shares on a basis of 5 shares of new no par for each share of of the present stock. It is assumed in view of the fact that the present common dividends were earned over five times in 1925 that the dividend rate on the new shares will show a substantial increase over the present rate of 8 per cent.

President J. M. Alderfer of the India Tire & Rubber Company, says the steady growth of the business makes additional working capital necessary.

The gross sales of the company have grown from $1,771,253 in 1922 to $4,941,061 in 1925 and excellent prospects for 1926 are reported. Earnings for 1925 after all charges and preferred dividend were $40.74 per share on common.

Condensed balance sheet from the report of Ernst & Ernst as of December 31, 1925, follows:

ASSETS

Cash	$ 82,660.52
Accounts receivable (less for doubtful)	947,147.83
Inventory	1,230,757.33
Bills receivable—stock	41,817.94
Investments	8,837.70
Miscel. accounts receivable	25,849.00
Total current	$2,337,070.32
Permanent	673,803.97
Deferred	24,137.94
	$3,035,012.23

LIABILITIES

Notes payable	$ 335,500.00
Trade acceptances	296,170.36
Accounts payable	494,188.05
Accrued	81,915.02
Total current	$1,207,773.43
Reserves	72,034.00
Preferred stock	256,494.00
Common stock	1,113,195.00
Surplus	385,515.80
	$3,035,012.23

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A comparatively small percentage in a compound will make a stock run smoother on calenders and tubing machines, without depreciating the quality

ESPECIALLY USEFUL IN FRICTIONS

CONTINENTAL RUBBER COMPANY OF NEW YORK

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New York

U.S. EXPORTS OF RUBBER GOODS FELL OFF SLIGHTLY IN FEBRUARY

Total of $4,911,404, Although Slightly Less Than That of January, is a Decided Increase Over the Total for Feb., 1925, of $3,724,021—Accessories Gain

The total value of the United States rubber goods exports in February was $4,911,404, slightly less than the January total of $5,101,469, but a decided increase over the total for February, 1925, of $3,724,021, according to the Rubber Division of the Department of Commerce.

The value of tires and tubes was unusually large in proportion to the total exports of rubber goods, forming over 57 per cent of the value. Unit values showed a rather erratic tendency but in the most important classes of goods an upward trend was observed.

Exports of pneumatic automobile casings was, as usual, the biggest item in the tire trade; 133,993 casings valued at $2,136,783 were exported. The average value per casing advanced to $15.95 from a January figure of $15.66. Automobile solid tires also increased in unit value from $34.72 to $35.40; the total exports of this item numbered 9,010, worth $318,972. Inner tubes for automobiles showed practically no change in unit value at $2.89. A total volume of 96,848 tubes valued at $280,015 were exported. Each of these items excepting automobile solid tires, showed substantial gains in volume of exports over January. The largest market for automobile casings was Argentina, which took 19,097 casings valued at $291,545. Japan, Denmark, and the United Kingdom were other important purchasers.

Exports of other casings and inner tubes totaled $25,786 in value, and other solid tires $44,931. Tire repair material and accessories valued at $110,860 were exported in February, representing a very small gain over the January value of $110,347.

***Footwear Totaled* $576,162**

Exports of rubber footwear in February, including rubber heels and soles, was $576,162, made up as follows: rubber boots, $85,355; rubber shoes $59,955; canvas rubber-soled shoes, $320,168; and rubber heels and soles, $110,684. The volumes were respectively, 28,216 pairs, 67,879 pairs, 374,398 pairs, and 323,472 pounds. In both volume and value there was a decided decrease from the January trade figures, but there was a more decided downward trend in volume, because the unit value in February showed slight increases.

February export of mechanical rubber goods showed a total value of $468,249 made up of $194,816 worth of rubber belting, $183,471 worth of rubber hose, and rubber packing valued at $89,962. These figures compare very favorably with the January exports which had a total value of $463,444.

Trade in rubber sundries and specialties during the month totaled $208,184, and was larger than the January trade, but may be considered a less than normal February trade.

The value of hard rubber goods exported during February declined to $68,299, slightly less than the January figure of $61,560, and considerably less than the February 1925, value of $73,837. Electrical hard rubber goods made up $30,026 of the total for this month, the remainder being supplied by $28,273 worth of other hard rubber goods.

The other rubber manufacturers formed a total value in February of $683,153. This was made up by $28,397 worth of erasers and rubber bands going mainly to the United Kingdom, $225,738 worth of rubber thread which was sold largely to France, the United Kingdom, Germany, and Spain; $132,997 worth of reclaimed rubber; rubber and friction tape valued at $15,713; and $173,558 worth of other rubber goods.

Not

— CAN reclaimed rubber be used but what KIND should be used?

That is the question!

The answer is:

BLACK DIAMOND *and* BUFFALO } *for* Tire Treads

ELK *and* RANGER } *for* Tube Stocks

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100 E. 42nd St., N. Y. Factories: Buffalo, N. Y.

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43 YEARS SERVING THE INDUSTRY SOLELY AS RECLAIMERS

20,000 LBS. OF RUBBER STOLEN FROM GARAGE

A 10-ton truck, containing 20,000 lbs of crude rubber, was stolen recently from a garage at 82 King St., New York City. The rubber, in 138 cases, was the property of Poel & Kelly, 347 Madison Ave., crude rubber brokers, and was to be delivered at the Baltimore and Ohio pier at the foot of Dover St. Because of the late hour, it was run into the King Street garage.

At 5 o'clock the next morning Ben Tooren, the watchman at the garage, answered a knock at the door. He was greeted by four armed men. They seized Tooren and carried him to their sedan where one of the four stood over him. The others ran out the truckload of rubber. Two of them remained on the truck and two rode with Tooren in the sedan to Van Cortlandt Park where they pushed him out of the car. Tooren found a patrolman and went with him to a police station where he was questioned by detectives. At this writing, neither the truck nor the 138 cases of crude rubber had been recovered.

Pierce-Roberts Damaged

Fire originating in the mixing room of the Pierce-Roberts Rubber Co., Trenton, N. J., manufacturers of druggists' sundries, did considerable damage to the factory. The flames were fed by naptha and chemicals.

Receivers' Sale in Equity

Valuable Manufacturing Realty

Machinery and Equipment

of

The United & Globe Rubber Corp.

Prospect and Frazier Streets, Trenton, N. J.

To Be Sold

TUESDAY, APRIL 27, 1926, AT 11 A. M.

On the Premises

REAL ESTATE—Manufacturing property, lot 400x350 ft., irr., improved with large 2-story building with annexes and additions; 3-story brick office building; 2-story brick warehouse building; testing building; garage; frame buildings; blacksmith and machine shop, etc.

MACHINERY AND EQUIPMENT—Wellman, Seaver & Morgan 3-roll Calendar; Birmingham calendars; Thropp and Farrel vulcanizing presses; Thropp vulcanizers; Thropp mills; Delaski circular hose weaving looms; Callahan hose knitters; hose wrapping machines; hose rolling machines; air brake winders; air brake wrappers; Singer sewing machines; lathes; drill presses; shaper; motors; transformers; air compressors; accumulators; pumps; small tools; office furniture; adding and bookkeeping machines, etc.

By order of J. PHILIP BIRD and EDWARD C. ROSE, Receivers.
BILDER and BILDER, Esqs., Newark, N. J., Attorneys for Receivers.

Descriptive Catalogue on Application

Samuel T. Freeman & Co., Auctioneers

1808-10 Chestnut St. Philadelphia

80 Federal St. Boston

34,067 TONS OF RUBBER IMPORTED IN FEBRUARY

According to statistics recently issued by the Rubber Association, 34,067 tons of rubber were imported into the United States in February, against 23,456 received in February, 1925. This figure included 31,832 tons of plantations; 1,548 tons of Paras; 227 tons of Africans; 250 tons of centrals; 204 tons of guayule; and six tons of Manicoba and Matto Grosso. Total importations for the two months ended Feb. 28 were given as 72,764, against 53,416 for the same period in 1925.

Of the 31,832 tons of plantations, 14,821 tons were shipped from Singapore; 4,188 from London; 2,992 from Penang; 2,013 from Belawan-Deli; 1,910 from Colombo; 1,899 from Pt. Swettenham; 1,458 from Batavia; and smaller quantities from seven other ports. From Manaos 1,283 tons of Paras were shipped, and Para shipped 265 tons. Shipments received in February included 792 tons of waste; 19 tons of Balata; and 728 tons of miscellaneous gums.

New York received 28,295 tons of plantations; Boston, 2,179 tons; and Philadelphia 364 tons. Of the 994 tons which were shipped to Pacific Ports, 944 tons were received at Los Angeles, 45 tons at Seattle and 5 tons at Portland.

Cactus to Build in Akron

M. M. Galvin, general superintendent of the Cactus Mfg. Co., manufacturers of a patented tire boot, said recently that his company had selected a site in Akron for a factory. The site, which is on Furnace St., near the factory of the Leo Meyer Rubber Co., covers 15,000 square feet. The company expects to employ 200 men, working in three eight-hour shifts and to be in production in 60 days. The factory to be erected in Akron will be a branch of the present one in Los Angeles, Calif. The Cactus company manufactures its tire boot from reclaimed rubber; it is needle-studded and self-vulcanizing when placed beneath a cut or blowout in a casing.

Issue Zinc Booklet

A research bulletin of 26 pages on "Metalic Zinc Powder as a Paint Pigment" was recently published by the New Jersey Zinc Co., 160 Front St., New York. The history and use of zinc dust in this application and practical information and formulae are presented in an interesting manner in this booklet. It is shown that as a rust retarder zinc dust when used in a paint primer is at least equal to any other high ingredient. Its covering and color-bindirg properties are also treated in great detail. The company claims that paint made from zinc powder is particularly adaptable to painting industrial plants. Paint made with zinc dust was found to cost considerably less than red lead paint.

Zinc oxides manufactured by the New Jersey Zinc Co. find a wide use in the rubber industry.

$1,500,000 GOLD NOTES OFFERED BY SEIBERLING

An offering of $1,500,000 in 5½ per cent three year convertible gold notes of the Seiberling Rubber Co., Akron, was recently announced by Peabody, Houghteling & Co., Inc., New York and Chicago; The Guardian Trust Co., Cleveland; Faxon, Gade & Co., Inc., Boston; and the Ohio State Bank & Trust Co., Akron. The notes, which are dated March 1, 1926 and due March 1, 1929, are offered at 98½ to yield about 6.05 per cent. They are registered as to principle only. Interest is payable March 1 and September 1 without deduction for any Federal Income Tax not in excess of two per cent, which the company or the trustee may be required or permitted to pay thereon.

Principal and interest is payable at the office of the Guardian Trust Co., Cleveland, or at the principal office of the Fidelity Trust Co. of New York. The notes are redeemable as a whole or in part, for the sinking fund, by lot of any time on 30 days notice at 101½ and accrued interest to and including March 1, 1927; at 101 and accrued interest thereafter to and including March 1, 1928 and at 100½ and accrued interest thereafter and prior to maturity.

The notes will be the direct obligation of the company and will constitute its only funded debt. These notes are followed by preferred and common stock having a market value at current quotations in excess of $5,750,000.

Seiberling Rubber Co. was incorporated in Delaware in 1921. The company's plants are located in Barberton, Ohio, near Akron, and in New Castle, Pa. Its products are distributed through 16 branches located in the larger cities of the United States to some 4,200 retailers, of whom about 50 per cent are exclusive Seiberling dealers.

KING AND QUEEN SEE TENNIS BALL MADE

One of the first inquiries the King and Queen made when they visited the British Industries Fair at the White City, London, was about the balls used at the Lenglen-Wills tennis match at Cannes. They were interested to hear that the Dunlop tennis balls had taken part, and they waited at the exhibit to see how a competition ball of the highest quality is manufactured.

During the tournament Dunlops published an ad in London newspapers, which said: "Mlle. Suzanne Lenglen and Miss Helen Wills are playing with the Dunlop stitchless lawn tennis ball throughout the Carlton, Cannes, Lawn Tennis Tournament. It is the only ball with an inner tube, and has been officially authorized by the 1926 Test of the Lawn Tennis Association."

Patboard Doubles Capital

The Patboard Rubber Co., Inc., 10 Bridge St., New York, recently filed a certificate with the Secretary of State which increases its authorized capital from $100,000 to $200,000.

HIGH PRICED RUBBER OFFSETS EFFICIENCY

According to a statement just issued by the Fisk Rubber Co., Chicopee Falls, Mass., the company produced about 100 per cent more casings and about 150 per cent more tubes in 1925 than in 1919, with practically the same number of employees. "This increase in factory efficiency, however, has been more than offset by increases in cost of raw materials, which constitute 75 per cent of the total cost of a tire, so that the total cost of producing tires has increased." Approximately one-third of Fisk's total production in 1925 was balloon tires.

Goodyear Buys Cotton Mill

The Goodyear Tire & Rubber Co., Akron, recently purchased a unit of the factories of the Cedartown Cotton & Export Co., Cedartown, Ga. The plant will be operated 24 hours a day to produce tire fabrics. It is also expected that the number of spindles will be doubled.

Cupples Increases Output

The Cupples Co., St. Louis, Mo., recently put into effect a 24-hour schedule in order to double its production of tires in anticipation of heavy spring and summer business. According to Edward H. Bahlmann, factory manager, three shifts working eight hours each have increased tire production 100 per cent and tube production 50 per cent, which is the maximum of the factory.

GRASSELERATOR
No. 808
for the Vulcanization of Rubber

The "high modulus" accelerator which permits reduction of sulfur, short cures at low temperature, and produces extremely high tensiles.

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GRASSELLI WHITE is a Lithopone that excels in color, fineness and neutrality. Write us for further information.

GRASSELLI CADMIUM YELLOW—A fine coloring pigment. Remains inert at high temperatures.

FEDERATION PRESIDENT DEFENDS RESTRICTION

(*Special to* THE RUBBER AGE)

Addressing the American Chamber of Commerce in London at the Hotel Cecil recently, Lieut.-Colonel the Hon. F. Vernon Willey (president of the Federation of British Industries) said that during his recent visit to America he was impressed with the widespread appreciation of Britain's difficulties. He appealed to members of the chamber to remember that the perhaps unfair presentation of the rubber question, through not being thoroughly understood, could do much harm. He vividly recollected a recent conversation with Secretary Hoover, and while he realizes that that gentleman understands, a large part of informed opinion in America does not understand that, to whatever extent the price of rubber is raised, it does not discriminate against the United States, but that any advance in price bears with equal disadvantages on all customers alike.

"In any case," Colonel Willey continued, "a large part of the profits do not go to the British Empire, but to the Dutch Indies, and I think it not inappropriate to remind those agitators in America against cordial relations with Britain that Britain might mention with equal propriety and with disapproval the State subsidy on shipping. An immense amount of public money in the United States is being poured out in support of a merchant marine in competition with Britain. Again, it is only recently that a scheme was endorsed by the U. S. Secretary of Agriculture and the Secretary of Commerce, whereby the price of corn a can be at least raised if not stabilized. This involved Governmental interference of the very kind Mr. Hoover so properly disapproves of. I do not mean on the question of rubber, but on the question of Governmental interference in trade.

Makes No Apology

"I make no apology for the fact that a scheme was introduced whereby the plantations could be saved from ruin; and, after all, it was to the advantage of the consumers in the United States more than anywhere else, because they are taking 70 per cent of the rubber production of the world. When I was interested in wool control the price of wool was supported by Governmental action, and but for that support the sheep population of the world would have been reduced to such an extent that the wool prices would have been higher than they are now. I pointed that out to Mr. Hoover, and he quite agreed."

International Elects

B. B. Benner was elected president of the International Rubber Co., Anderson, Ind., following the annual meeting of stockholders. Other officers elected were Ernest N. Hill, vice president and general manager; S. H. Downey, secretary-treasurer; and W. A. Simonson, sales manager. More than 150 stockholders attended the meeting.

TEXAS UNIVERSITY TO SELL GUAYULE RUBBER

Negotiations are under way for the purchase of large quantites of guayule plants and candaleria trees from lands of the University of Texas in Brewster, Terrill, Presidio, Culberson and El Paso counties. Approximately $10,000 worth of guayule rubber has been manufactured and marketed for the university, according to Charles S. Taylor, a west Texas business man.

Mason Arranges Vacations

Vacations on pay will be given to all foremen and production men of the Mason Tire & Rubber Co., Kent, Ohio, who have been employed five years or more by the company. Mason's high point of efficiency will be reached when the spring rush begins. Repairs were made on the Kent plant during the last two weeks of March.

Liberty Chain Chartered

Liberty Chain, Inc., with an authorized capital of $1,000,000, was recently chartered in Wyoming. The company will produce, purchase and market rubber goods. Headquarters will be at Casper, Wyo., but it will also have an office in Denver, Colo. Directors are H. A. Reichenbach, V. W. Mokler and E. E. Enterline, all of Casper, Wyo.

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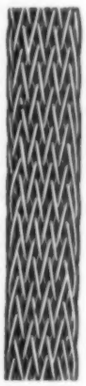

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Niles, Michigan

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Grey—Black—Red

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Your Inquiry Is Solicited.

THE DEFIANCE RUBBER CO.
Defiance, Ohio

GOVETT URGES ADOPTION OF COOPERATIVE SELLING

(*Special to* THE RUBBER AGE)

In an outspoken letter to the London press, F. A. Govett, chairman of two important rubber producing companies, urges the necessity of immediate action in regard to cooperative selling.

"If we are to attain cooperative selling of our rubber," Mr. Govett writes, "action is required, not words. We are just a lot of invertebrate idiots who go on chasing the buyers, instead of fixing the price at which they can have the rubber they require. But alas! I am too old and feeble myself to lead a movement, nor are my two companies large enough to give me the required force. But is there no one to come forward?

"The only real obstacle is the jealousy of the various plantation agents in whose hands rests the selling, each fearing lest his rival shall obtain an advantage. This is such a simple matter that the puerility of the jealousy makes one weep. All that is necesary is that an arrangement be made for each of the important groups or agents to do the selling in turn from time to time and that the commissions be pooled among them in the exact proportion in which the rubber is sold on account of each agent. The rotation of selling removes all reason for jealousy lest any group should diminish in importance, and any pecuniary loss would be impossible.

"If only some brave man would dash in and get a move on with this feeble R.G.A., he would have the warm support of my two companies, and, without doubt, that of many others."

Charles G. Gray

Charles G. Gray, aged 54, general sales manager of the Detroit Insulated Wire Co., Detroit, Mich., manufacturers of "Detroit" rubber covered wire, died recently at his home in Detroit after but a few hours illness. Mr. Gray, who was a native of Pittsburgh, was connected for many years with the Westinghouse interests in that city and later became identified with the National Cable & Wire Co., also of Pittsburgh. In 1912 he became associated with the Detroit Insulated Wire Co., as general sales manager.

Mr. Gray was honored by his associates for his straightforward manner and his willingness to undertake any task assigned to him. He was devoted to his family; a lover of good literature and a diligent student of history. His loss is deeply felt by his associates in the Detroit Insulated Wire Co.

Franz Roessler

Franz Roessler, aged 69, chairman of the board of the Roessler & Hasslacher Chemical Co., New York, died March 24 at his home in Perth Amboy, N. J.

Mr. Roessler was born Dec. 6, 1856, at Frankfort-on-Main, Germany. He studied chemistry at the University of Zurich and later at Freilberg, Saxony. He came to the United States in 1882 to engage in business as a manufacturing chemist at Perth Amboy.

Mr. Roessler was a member of the New York A. C., the East Jersey Club, Chemists' Club and Drug and Chemical Club. He was a director of both the First National Bank of Perth Amboy and of the Perth Amboy Trust Co. Besides his widow, five children survive.

Monobloc Cuts Force

The Monobloc Co., Cleveland, with a factory at Dover, Ohio, manufacturers of one-piece rubber battery jars, recently cut its working force, pending an improvement in business. The management stated that the plant will not shut down entirely.

UNITED STATES RUBBER STARTS NEW CAMPAIGN

With large space in the *Saturday Evening Post*, the *New York Times*, *Automotive Daily News*, *Automotive Topics* and other newspapers and periodicals, the United States Rubber Co. recently started what it characterized as "A New Kind of Advertising."

The advertisements are intended to acquaint the public not only with the steps which the company has taken and is taking to produce its own supply of crude rubbers but to help the motorist understand his tires. Questions and answers on the American rubber supply and on automobile tires are contained in the first advertisement and will be continued in subsequent ones.

IT PAYS TO MICRONIZE

BALANCED WEAR

NOTHING is quite so exasperating to the careful maker of quality rubber footwear as to find that the soles are outlasting the uppers.

This condition can be met and completely corrected by the inclusion in the upper stock of the requisite percentage of

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Reg. U.S. Pat. Off.

The World's Standard Gas Black

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41 E. 42nd Street-New York City

THREE PINE PRODUCTS COMPANIES IN MERGER

The formation was recently announced of the National Turpentine Products Co., representing a merger of the Florida Wood Products Co., Jacksonvile, Fla.; the Alabama Wood Products Co., Crichton and Foley, Ala.; and the Pensacola Tar & Turpentine Co., Pensacola, Fla. It was stated that the merger was the result of a desire to better handle the growing demand for pine products in the rubber industry and to materially increase the production under chemical control to meet the various high standards that the industry requires.

Well-known brands, "Sunny South" and "Pentarco", will be maintained at the present high standard of quality through a central laboratory at Jacksonville, Fla. Large sums will be spent to increase the production of the plants. The products of the National Turpentine company will be marked by E. W. Cooledge, general sales agent, with offices in Jacksonville, and connections throughout the country together with the products of the American Turpentine & Tar Co. and the Dunlevie Pine Products Co. J. C. Mathews, 300 Madison Ave., New York, is eastern representative.

Fisk Working Two Shifts

The Fisk Rubber Co., employing about 3,500 workers at its Chicopee Falls, Mass., factory, is now operating on two shifts a day. The day force is working 45 hours a week, and the night force 50 hours. The company is producing 16,000 casings and 26,000 inner tubes a day, in addition to 12,000 casings and 20,000 tubes at its Cudahy, Wis., plant.

Despite this high rate of operation, the inventory of finished tires and tubes is said to be lower at this time than it was a year ago. Production schedules call for a gradual increase to care for spring expansion in sales.

RUBBER CIGARS NOW

Street vendors in New York City were recently selling imitation cigars made of sponge rubber. The cigars carry orthodox paper bands and when held in another person's hand cannot be detected as clever imitations. The brown sponge rubber from which they are made loans itself admirably to the purpose. The cigars are to all appearances fine Havanna perfectos.

To Make Airplane Tires

The Irwin Aircraft Co., Sacramento, Calif., recently installed in the factory of C. D. Hibbs, Fort Worth, Texas, molds for the manufacture of 20 x 3 aircraft tires. According to Mr. Hibbs, who recently started the manufacture of these tires, they are the first 20 x 3 clincher casings to be made in this country. All the tires of this size manufactured thus far have been of the single tube type.

MONARCH PLANT SOLD AT RECEIVER'S SALE

The purchase at receiver's sale of the factory and assets of the Monarch Rubber Co., Hartville, Ohio, by W. Paul Wagner and Howard B. Fawcett, was recently confirmed by Federal Judge Westenhaver in Cleveland. It is understood that Messrs. Wagner and Fawcett were acting in behalf of a group of Canton and Hartville men and that a new company is being contemplated.

The Monarch Rubber Co. was started about 12 years ago by the Besaw brothers as the Besaw Tire & Rubber Co. Later it was purchased by the Monarch company and its factilities increased. In 1921 financial difficulties were encountered and Paul J. Himmelright was appointed receiver by the Federal Court. Since that time the factory has been operated by the receiver.

Although the purchasers have not completed their plans, it is understood that additional equipment will be installed and other improvements made. The factory is a three-story reinforced concrete building and has a capacity of approximately 750 casings a day. The consideration was not made public.

C. J. Butler Back

C. J. Butler, vice president of the United States Rubber Co. is back at his desk after a trip to California, during which he went through the Panama Canal.

CABARRUS COTTON MILLS

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PRESIDENT & TREASURER

KANNAPOLIS, N. C.

Superior Quality Tire Fabrics

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SYNTHETIC RUBBER MADE FROM COKE IN GERMANY

Cables from Berlin recently reported that synthetic rubber has been made from coke by Prof. Fritz Hoffman of the Kaiser Wilhelm Institute of Breslau. Although the process is still on a laboratory basis, representatives of the U. S. Department of Commerce are said to have already investigated it

During the war, German scientists discovered a method of manufacturing a method of producing synthetic rubber from potato starch. Cut off from the sources of plantation rubber, they made 50,000 tons of rubber from potatoes. It was necessary, however, to mix with this a certain quantity of reclaimed in order to obtain the final product, which, even then, was considered unsatisfactory. Moreover, this synthetic rubber cost $3 a pound.

It is said that the new synthetic product may be produced at a cost considerably lower than the cost of potato rubber and excels it in quality. The process is secret, but it is known that the gases thrown off by coal in the manufacture of coke contain butylin, the basis of synthetic rubber. By processing, a product is produced to which it is not necessary to add natural rubber. It is said to be possible, however, to improve the quality of coke rubber by adding plantation to it.

Issue Graphic Charts

Henderson, Helm & Co., Inc., 44 Beaver St., New York, recently issued 14 charts in colors which comprise a graphic study of the rubber and allied industries. The charts cover:

Prices of Ribbed Smoked Sheets Spot New York, 1922-1925; Price Trends of Rubber and Raw Materials in General, 1913-1925; Relation of Acreage Planted to Rubber Prices, 1906-1925; Trends of World Production and Consumption Compared, 1910-1925; Total Exports of Rubber (All Grades), 1925; Monthly Exports of Plantation Rubber, 1925; Estimated World's Consumption, 1925; Trend of Imports to U. S. A., 1911-1925; Cumulative Imports of Rubber to U. S. A., 1920-1925; Annual Production of Passenger Cars, Trucks and Pneumatic Tires, 1913-1925; Monthly Production of Passenger Cars, Trucks and Pneumatic Tires, 1922-1925; Trend of Motor Vehicle Registrations in U. S. A., 1912-1925; and Monthly Consumption of Gasoline, U. S. A., 1920-1925.

Italy Discovers Rubber

(*Special to* THE RUBBER AGE)

Rubber has been discovered in Italy's recently acquired colony of Jubaland, where a special has explored the course of the Upper Juba and sent a first sample to Italy for examination by Milanese experts. Jubaland rubber is considered identical in quality with and known commercially as Congo, and a yield of 71 per cent is expected from the trees.

Tests which are being made in Milan are as yet incomplete, and the quantity of rubber exploitable in Jubaland is not known. Consequently the optimistic expectation that Italy will be able to manufacture automobile tires from her own raw material is considered to be premature.

Aetna Makes Improvements

The Aetna Rubber Co., Ashtabula, Ohio, recently installed an additional boiler and two new pumps. Installation of the boiler necessitated erection of another smoke stack, which is 125 feet high and 54 inches in diameter. The company uses the pulverized fuel system. Enlargement of the power plant will greatly increase the production capacity of the factory.

TO ISSUE REPORT ON AFRICAN RUBBER SOON

It was recently learned at the Department of Commerce that the survey of rubber growing possibilities in Africa is nearing completion and that a report is expected within the next few weeks.

The results of the survey will throw a great deal of light on a new plantation field, which may be developed with the aid of American capital and in which Harvey S. Firestone, president of the Firestone Tire & Rubber Co., Akron, is a pioneer. However, development by American capital in plantation territory outside the domain of British control, is being given greater encouragement.

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SUPREX CLAY

Maximum Re-enforcing Value at Minimum Volume Cost.

Prompt and uniform shipments of this superfine clay pigment are now available.

Carefully refined exclusively for rubber compounding, SUPREX CLAY may be relied upon for the maximum re-enforcing effect obtainable from this class of pigment.

SUPREX CLAY carries the full guarantee of compounding uniformity which has made

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The Highest Standard Gas Black of the Rubber Industry

J. M. HUBER, Inc.

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SAYS PRICE DECLINE WILL HELP PRODUCERS

(*Special to* THE RUBBER AGE)

Presiding in London at an extraordinary general meeting of the Telogoredjo United Plantations, Ltd., convened to authorize an increase in the company's capital, Major C. C. L. Fitzwilliam, M.C., said:—

"The present position of rubber is of interest. The heavy fall which has taken place during the last five weeks amounting to over 2s. (48 cents) per pound, has caused no little uncertainty among those who have interests in the industry. In spite of the heavy fall in the value, it can hardly be denied that this fact is not without its advantage. The price of the commodity rose much too sharply to be of general benefit in the long run to producers. It created an unhealthy position in which so much outside speculation took place that sooner or later the inevitable reaction was bound to occur. From a violent outburst of optimism which seemed to permeate not only the rubber trade but also those who were interested investors, feeling has now changed to a mood of uncertainty, even if not exactly one of pessimism.

"In my opinion circumstances do not justify this violent change of sentiment in so short a time. Restriction has functioned as it was expected to do by those who were in a position to know. At the same time, despite the fact that producers as from February 1 are allowed to export 100 per cent production, I venture to think that by the end of 1926 it will be found that consumption is not very far behind production."

Gammeter Quits Goodrich

It was recently announced by officials of the B. F. Goodrich Co., Akron, that John R. Gammeter, chief consulting engineer has been granted leave to devote his time to personal affairs in engineering fields. Mr. Gammeter does not expect to retire from the rubber industry, but will retain his office at the Goodrich factory where he will continue to be in contact with the engineers.

Joining the Goodrich company 30 years ago, Mr. Gammeter has gained national prominence through his inventions of labor-saving and other devices for many branches of rubber manufacturing. The Gammeter valve used in airships is one of his most important inventions. Because of the trouble encountered in controlling the gas in lighter-than-air ships during the war, he turned his talents to the perfection of the Gammeter valve which is now widely used. He is intensely interested in the future of aviation and was named in 1920 as a member of the Ohio State Aviation Commission.

Mr. Gammeter was born in Akron May 19, 1876. Following a common school education, he went into the plumbing and heating business but returned to Akron when he was 20 where he obtained employment at the Goodrich factories. He has been identified with the company ever since, with the exception of about nine months spent with the Pennsylvania Rubber Co., Jeannette, Pa., in 1900. One of his first inventions was a machine trimmer for trimming the overflow from rubber stoppers.

Since that time Mr. Gammeter has been devoted to the improvement of methods and devices used in the rubber industry. The Goodrich experimental department, of which he had charge until recently, has been responsible for dozens of inventions.

Denman Myers Plant Sold

The factory of the Denman Myers Cord Tire Co., Warren, Ohio, which has been idle for several months because of financial difficulties, was recently sold to the Fidelity Tire & Rubber Co., Massillon, Ohio. Announcement was made that the factory would resume operation immediately. Workers are now placing the plant in condition.

A. Schraders' to Build

A. Schraders' Sons, Inc., Brooklyn, N. Y., manufacturers of tire valves and gauges, will soon begin the construction of a $300,000 extension to the Akron factory. The addition will be five stories high, 65 by 200 feet and will contain approximately 65,000 square feet of floor space. The company supplies most of the Akron tire manufacturers with their valves.

To Make Molded Goods

The R. W. Rhoades Metaline Co., Inc., New York City, was recently chartered at Albany with an authorized capital of $75,000. The company will manufacture dry lubricants and molded rubber goods. Incorporators are Richard W. Rhoades, 110 Villa St., Mt. Vernon, N. Y.; Alvan Payne, West Drive, Douglas Manor, L.I. and William A. Perry, 162 Burns St., Forest Hills, N. Y. A. T. and B. B. Payne, Long Island City, N. Y., are attorneys for the corporation.

To Sell United & Globe

Real estate and equipment of the United & Globe Rubber Corp., Prospect and Frazier Streets, Trenton, N. J., will be sold at public auction on the premises April 27, at 11 a. m. The auction, which has been ordered by J. Philip Bird and Edward C. Rose, receivers, will be conducted by Samuel T. Freeman & Co., of Boston and Philadelphia. Real estate consists of a lot 400 by 350 feet on which stands a two-story building with annexes; a three-story brick office building; a two-story brick warehouse; testing building garage; frame buildings; blacksmith and machine shop, etc.

Equipment includes calendars; vulcanizing presses; Thropp vulcanizers; Thropp mills; hose weaving looms; hose knitters; hose wrapping and rolling machines; and many other items.

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TIRE SUPERINTENDENT
One who is thoroughly familiar with compounds and practical on calendering, milling, compounding, and tire building. Can offer good future to the right man who will actually work at the start. The proposition is unusual. Start immediately. Factory location New York City.
Address Box 427—THE RUBBER AGE.

LARGE MANUFACTURER of industrial chemicals requires salesman for permanent position in Mid-West. Chemical training essential. Salary and expenses. Write full details of education and experience in first letter enclosing photograph if convenient.
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NOW AVAILABLE
Man with 17 years experience available to Mechanical Goods Manufacturer. Experienced from bench to supervisor. Mold designing and rubber compounding.
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MACHINERY FOR SALE
4 Mixing Mills, 14 x 36″, with gears and shaftings;
2 Mixing Mills, 16 x 40″, with gears and shaftings;
1, 3 Roll Calender, 14 x 14″;
1 Tuber; 1 Skiver; Large assortment steam tables.
Rubber equipment and machinery tools.
Right prices for quick call.
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EQUIPMENT WANTED

Two experimental mills on one base;
Peerless rubber cutter;
Rubber bailer and Scott Tester.
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INTERNATIONAL PULP CO., *41 Park Row, New York, N. Y.*
SOLE PRODUCERS OF PURE **ASBESTINE** SPECIALLY PREPARED FOR USE IN RUBBER
Covered and Protected by Letters Patent Registered at U. S. Patent Office, Washington, D. C.
LIBERAL WORKING SAMPLE FURNISHED FREE

U. S. HAS ONE MOTOR FOR EVERY 5.8 PERSONS

More than twenty million motor vehicles were in use on the highways of the United States in 1925, according to the Bureau of Public Roads of the United States Department of Agriculture. The total registration reported was 19,954,347, but there were in addition 96,929 State and Federal Government owned vehicles not included in this figure. The increase in registrations during the year amounted to 2,360,670, or 13.4 per cent. Truck registration increased 14.5 per cent for the entire country.

New York Still Leads

New York leads in total registrations, with 1,625,583, followed by California, Ohio, Pennsylvania and Illinois in the order named, all with registrations of over 1,000,000. There is now one motor vehicle for each 5.8 persons in the United States. The total revenue from registration fees, permits, etc., amounted to $260,619,621, of which $177,706,587 was made available for State highways, $19,124,014 for State road bonds and $48,396,471 for local roads.

Columbus Tire Reorganizes

Stockholders of the Columbus Tire & Rubber Co., Columbus, Ohio, which stopped producing tires and tubes last October, effected a reorganization at a recent meeting and elected the following new directors: W. H. Herman, A. Simon, R. M. Randolph, Harry N. Neff, W. S. Meighen, C. Hautzenroader, Veit Koerner, L. A. Mark and John W. Zuber. The new board is expected to meet shortly to elect officers and complete the reorganization by filing the necessary papers with the secretary of state.

Dr. C. Moon is shown testing rubber tubing at the Bureau of Standards, Washington. Tubing such as this, made from high grade compounds containing zinc oxide and carbon black, may show an ultimate tensile strength of 4,000 lbs. per sq. in. or more, at an ultimate elongation of 700 per cent.

Rubber Heel Patented

William G. Eaton, of Hill, Mass., was recently granted U.S. Patent No. 1,558,850, covering a rubber heel comprised of a body portion provided with a plurality of nail washers embedded therein and conical nail guides integral therewith. These extend and taper from substantially the tread surface of the heel and the nails are directed from an automatic nailing machine through the nail washers.

WHITFORD SAYS HIGH PRICES WILL CONTINUE

H. N. Whitford of the Rubber Association of America said in a recent address before the Rotary Club in Washington that high rubber prices are likely to continue until 1932. He claimed that unless plantings are greatly increased consumption of crude rubber will exceed production in two more years.

Mr. Whitford quoted statistics which showed that the United States paid 70 per cent of the world's $600,000,000 rubber bill in 1925. He predicted that during the current year the world's rubber bill would total $800,000,000, of which the United States may pay $500,000,000.

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why every month sees the addition of several new advertisers in THE RUBBER AGE.

They have become convinced of its merits and act accordingly. May we tell you more about the many advantages which we can offer you?

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GLEASONITE TO BUILD OWN RECLAIMING PLANT

A plant for the reclaiming of its own rubber is to be erected by the Gleasonite Products Co. near the present factory at 430 Court St., Brockton, Mass. The building will be one story high, 60 by 40 feet.

Rumors to the effect that the company was going into the reclaimed rubber business on a large scale were denied by Fred J. Gleason, president. "We have contracted for our supply of rubber for this year," he said. "We are not situated so that we could successfully compete with firms with railroad spurs. The new building is for experimental purposes and later, perhaps in another year, we may go into the business on a larger scale."

The company has a warehouse on a railroad siding at the commercial yards, and has headquarters at Boston. Up until a short time ago, the Gleasonite Products Co., which manufactures rubber soles and heels, was one of the busiest in Brockton. At the present writing, demand for its products is at an ebb, but Mr. Gleason expects business to again pick up shortly.

Hammesfahr Resigns

The resignation of Werner S. Hammesfahr from the crude rubber brokerage firm of Henderson, Helm & Hammesfahr, Inc., 44 Beaver St., New York, was announced by the company on March 31. The business will be continued at the same address under the name of Henderson, Helm & Co., Inc.

INFORMATION EXCHANGE

The inquiries listed below have already been answered but additional information from our readers will be welcome. Mention the reference number in correspondence. Address:

Information Exchange

THE RUBBER AGE, 225 Fourth Ave., N. Y.

Layout for Tire Plant

(Reference No. 177) We are desirous of obtaining a layout for a modern tire factory.

* * *

Formula for Dental Rubber

(Reference No. 178) Can you supply me with a modern formula for a pink dental rubber?

* * *

Proofed Duck

(Reference No. 179) We are in the market for proofed duck for motor cars. Will you have some manufacturers supply us with quotations?

* * *

Book on Inner Tubes

(Reference No. 180) Can you give us the name of any publication, books or articles on the manufacture of inner tubes?

* * *

Carbon Black for Gas Black

(Reference No. 181) A reader asks if there is any difference between carbon black and gas black used in the rubber industry and in the manufacture of printing inks.

COLUMBIA TIRE CORP. GETS FORD CONTRACT

According to a recent announcement by R. A. Wurzburg, president, the Columbia Tire Corp., Portland, Ore., has been awarded a contract to supply the assembling plants of the Ford Motor Co. in Portland with tires. Some of the tires used by the Seattle factory will also be supplied by the Columbia corporation.

Production will be materially increased as a result of this contract. The curing capacity of the plant was recently doubled and several thousand dollars worth of new equipment was added. A night shift has been added to care for the increased output.

Alfred A. Aya, vice president of the Columbia Corporation, recently returned to the factory after a visit to Los Angeles where he held a series of conferences with dealers and with Louis A. Wyman, vice president in charge of sales in California.

Balloon Suit Dismissed

Coloring toy balloons with a metallic compound to make them resemble gold is an old process and not an invention, the U. S. Court of Appeals at Cleveland ruled recently in dismissing the suit of Arthur P. Witten and George E. Hall of Akron against the Oak Rubber Co., Ravenna, Ohio. The Court upheld the decision of Federal Judge D. C. Westenhaver, before whom the case was previously tried.

PEQUANOC RUBBER COMPANY
Office and Works: BUTLER, N. J.
MANUFACTURERS OF
RECLAIMED RUBBER
WITH A REPUTATION FOR
UNIFORMITY -- RELIABILITY -- CLEANLINESS

SULPHUR
FOR THE RUBBER TRADE
"TIRE" BRAND SUPERFINE Rubber Sulphur
"TUBE" BRAND VELVET Rubber Sulphur
Specify "Tire" and "Tube" Brands on your orders. This will assure you of Stauffer quality and service.
Stauffer Chemical Co.,
Houston Texas
San Francisco, Cal. Chauncey, N. Y.

The CARTER BELL MFG CO
CARTER BELL STANDARD SINCE 1903 RUBBER SUBSTITUTES
150 Nassau Street New York

HENDERSON PREDICTS FALL IN CONSUMPTION

A recent market letter issued by Henderson, Helm & Hammesfahr, Inc., 44 Beaver St., New York, which has since been changed to Henderson, Helm & Co., Inc., contained the following prediction of a fall in crude rubber consumption:

"It is generally conceded that we shall not consume as much crude rubber in the United States this year as last year. Against the actual consumption of 143,000 tons of reclaimed rubber in 1925, we have a productive capacity of reclaimed today of at least 200,000 tons. This may not all be consumed, but it can be manufactured in case prices should again advance materially. As a result of last year's experimental work, tires and even tubes are actually being made from reclaimed rubber without any crude rubber. To be sure, the wearing quality is diminished, but not sufficiently so to prevent a substantial production of this type, especially in view of the difference in cost.

Auto Production High

"Automobile production at Detroit is keeping pace with retail sales. These show from 25% to 30% increase over the same period last year. This is largely accounted for by a stimulus of long term installment payments. During the winter installment plans were put in operation by some companies permitting payments to cover 16 to 18 months, as against 12 months previously. While this has stimulated business, it is questionable whether it is sound. After all the new car business today represents only about 20% of the annual tire business.

"The Rubber Exchange of New York has been functioning just over a month, and results have been considerably better than were expected. So far transactions have totaled 3,680 lots or 9,200 tons. The favorite positions have been May and July delivery, although on active days considerable business was done in other months. Each week's operations have shown a healthy gain over the previous weeks, and it is remarkable the amount of interest from all sections of the country, being displayed by inquiries as to methods of operation."

Northern Rubber Elects

The Northern Rubber Co., Barberton, O., held its annual stockholders meeting March 15, and elected the following directors: Edmund Shaw, L. J. Schott, Louis Schott, Dr. A. A. Kohler, Owen Moynihan of Akron; Stanley Baltzley, A. Z. Wheeler, Perlee Snyder, Frank W. Siffert, Wm. E. Hemperly of Massillon; F. M. Howard and J. J. Bower of Columbus; and J. B. Imler of Canton. The company has recently doubled the capacity of its plant.

Goodyear Promotes Young

H. J. Young, who has been manager of the cost and payroll department of the Goodyear Tire & Rubber Co. of California, Los Angeles, has been appointed controller. Mr. Young assumed his new duties on April 1.

LONDON RUBBER STOCKS SHOW STEADY INCREASE

(Special to THE RUBBER AGE*)*

Week by week for a month London rubber stocks have been increased. Heavy landings are disclosed by the latest return, which shows an increase in stock amounting to as much as 1,176 tons, and the reserve at this writing stands at approximately 12,000 tons, in comparison with a total of less than 6,000 tons at the opening of the year.

Heavy wintering is reported on the estates in the East, in consequence of which total shipments for March are not expected to exceed the February figures. Malayan exports for the first half of March are placed at only 12,370 tons, against 15,000 tons for the corresponding half of February, and although the Chinese holidays were partly responsible for the lower total and larger quantities are expected for the remaining half of the month, the full shipment should prove below original estimates.

Discussion continues of the defensive measures which, it is suggested, should be adopted by producers in order to counter the operations of market speculators, and support for the project is growing. Sir Ernest Birch, in addressing the stockholders of the Pegoh Company, however, mentioned that without binding the directors until they have studied a definite scheme, the board is alive to the benefits of cooperation so long as it has a say in the selling of its own produce.

How Should Rubber be Dried ?

The Rubber Shortage demands economy in crude and reclaim preparation.

Carrier Drying Systems,

including the well known Hunter Process, produce uninjured and uniformly dried stock. These Systems assure reduction in time, space, labor and milling costs.

Write for details.

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Offices and Laboratories
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MICA

NON-METALLIC **WATER GROUND**

Highest Grade for Rubber Industries

Pure—finely powdered—For use in tread stocks, repairing tires, in air bags, inner tubes and various kinds of molded mechanical goods.

Desirable as it is a Toughener and Heat Resister

THE HARSHAW FULLER & GOODWIN CO.
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Crabtree, N. C. Newdale, N. C.

Samples upon request

STOCKS CARRIED AT

Cleveland, O. Trenton, N. J. Chicago, Ill.

GOODYEAR TO REDEEM $1,091,700 GOLD BONDS

The Goodyear Tire & Rubber Co., Akron, will redeem on May 1, next, at a price of $110 and accrued interest, $1,091,700 principal amount of 10-year eight per cent sinking fund gold debenture bonds. The bonds mature on May 1, 1931. The bonds drawn for redemption by lot are payable at the principal office of the Central Union Trust Co., 80 Broadway, New York, upon surrender of the debentures in negotiable form.

Good to Enlarge Plant

The Good Rubber Co., Kenmore, Ohio, plans to add a small extension to its factory this year to care for a contemplated increase in production, according to W. D. Good, who was recently re-elected president. Other officers elected were S. W. Good, vice president; E. K. Good, treasurer; and G. B. Good, secretary.

Rubber Glove Patented

U.S. Patent 1,559,114, recently granted to Clarence H. Maranville, Akron, consists of a glove comprising an all rubber body, having finger and thumb portions. These portions have thickened walls in zones with projections extending from the surface, the thickened portions being integral elastic parts of the glove body.

DUNLOP BUILDS GIANT AIRPLANE TIRES

The largest tires ever designed are being produced at Fort Dunlop, England, for the new giant air liners in the service between London and Paris. Each of the tires is 7 1-2 feet in diameter and weighs nearly 224 lbs. The tube weighs about 38 lbs., compared with the 1 3-4 lbs. of a light automobile tube. The tires are of the wired type, and their bead wires will stand a breaking load of 18 tons on each bead. The wheels, with hubs 20 inches long, weigh approximately 560 lbs.

Pioneer Opens Laboratory

The Pioneer Rubber Co., Willard, Ohio, recently opened a small chemical laboratory near its office building. The building, which was formerly used as a restaurant, has been completely remodeled and has been equipped with modern apparatus. LaVerne Pagel has been placed in charge of the laboratory.

"Crown" Registered

Herbert A. Rindskopf, doing business as the Crown Rubber Mfg. Co., Brooklyn, N. Y., recently registered the trade-mark "Crown" in the U. S. Patent Office under Ser. No. 218,663. The trade-mark has been used since 1910 for rubber goods and goods made of rubber compositions, especially sanitary articles.

100 P.C. CRUDE EXPORTS CONSIDERED IMPROBABLE

(*Special to* THE RUBBER AGE)

Uncertainty prevails as to the future of restriction in London rubber circles, no official announcement having yet been made as to what will happen next May. Although the restricting areas are now permitted to work up to 100 per cent, the general opinion is that the capacity of the estates is little more than 95 per cent, and if the equivalent of 100 per cent is exported over the current quarter it will be only with the assistance of the release of stocks which have accumulated during the restriction period.

In view of the operation of a number of Dutch companies, the chairman of the Dutch Netherlands Association supports the belief that 100 per cent production will be found difficult of achievement. During the three years 1922-24 only one of the 22 companies which were producing to full capacity managed to exceed the British Malayan standard of 500 lbs. per acre, the average working out to 355 lbs. per acre. This experience certainly tends to confirm the view that the latter figure constitutes almost full production, and renders improbable the export of more than 100 per cent of Standard production, should sanction be given to the export of such a quantity.

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A superior whiting of impalpable fineness.

Used in many cases to replace Cliffstone at lower cost.

WM. S. GRAY & CO.
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BRITISH RUBBER TRADE WAS SPOTTY LAST YEAR

(*Special to* THE RUBBER AGE)

Whatever else may be said of Great Britain's rubber goods manufacturing industry last year, it can by no means be called steady. The year was one of sharp seasonal fluctuations and of unanticipated and occasionally disconcerting happenings. Viewed in perspective, the year's demand for proofing was fairly good, if unequally distributed, although it was disturbed by factors such as a garment workers' strike and, of course, the high price of crude rubber. The former broke out on November 16 and was settled on December 18. The demand for both proofed garments and proofed piece goods did not attain the level of 1924, but this is not regarded as a reason for pessimism, as 1924 was a record year due to the record rainfall registered.

Proofing Trade Good

Proofers and makers-up were well engaged during the first half of the year, which eclipsed all previous seasons, but the demand fell off in the summer. The call for garments and proofed cloth briskened up again in the fall, though makers-up then began to feel sharply the undercutting from non-associated concerns which did not pay trade union rates. Anxious to bring wage rates into line and eliminate what was considered unfair competition, associated concerns decided to cut the bonus on wages. This demand was stoutly resisted by the workers and led to the strike mentioned. A settlement was effected on a basis of a 20,20,40 per cent increase on log rates for making, machining, and finishing respectively, and a six months' agreement (instead of a previous 33⅓, 33⅓, and 45 per cent increase on log rates).

Exports Were Disappointing

Artificial silks, lightweight cottons, and polished surface proofs probably accounted for the bulk of a fairly well assorted business in 1925. The progress made by proofed artificial silk during the year was remarkable. While there was a moderate demand for high class proofing, Kaffirs and non-guaranteed proofs were as conspicuous as ever. In export trade the year was a disappointment, both for piece goods and garments. Continental demand was poor, while business with the colonies, especially Australia and New Zealand, was somewhat better. The rainproof trade was bad throughout the year.

There was a good seasonable demand for tires owing to the favorable weather, but the demand for sporting goods was not up to standard.

Mechanicals Were Slow

A rather colorless year was experienced by the general mechanical trade, relieved mainly by various price rises due to the advancing price of crude rubber. Trade was bright at the opening of the year. Advances took place in May, August, and December, and although they varied according to the class of goods, prices are now some 40 per cent above list prices in the case of general mechanical goods. In this department export trade also has lagged behind the home demand. This is chiefly accounted for by the fact that yearly or half-yearly contracts are general throughout the domestic trade, and the certainty of higher prices induced many concerns to purchase extensively. This also applies to hot water bottles, where many contracts were booked before last August. Later in the year—the cold months when demand is usually heavy—the demand was purely hand to mouth.

Speaking generally, prospects for the current year were not bright, chiefly owing to the high price of rubber, but most factories have plenty of work on hand.

MILLER TO OPEN NEW FACTORY IN KENMORE

The Miller Rubber Co., Akron, plans to open its new factory in Kenmore, Ohio, on April 19. Deficiency of water which at first presented difficulties, has been overcome through the cooperation of the Kenmore City Council. Wells are being cleaned and enlarged and it is expected that the plant will have an adequate supply of water. It was estimated that 350 gallons of water a minute will be used in the operation of the new factory. The plant is equipped throughout with the most modern machinery.

Products similar to those manufactured in the Akron factory will be produced at the Kenmore plant.

AKRON-WILLIAMS A-W PRODUCTS

Heater Presses
Molds and Cores
Tubing Machines

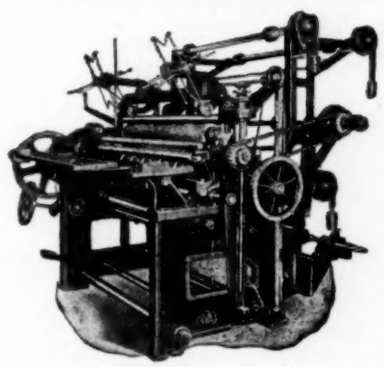
THE WILLIAMS FOUNDRY & MACHINE CO.
"In Business Since 1888"
AKRON, OHIO

EMBOSSING CALENDERS
For Artificial Leather, Oil Cloth,
Carriage and Automobile Covers

DRYING MACHINES
with Copper or tinned iron Cylinders for Cotton Ducks, Drills and Sheetings

The Textile-Finishing Machinery Co.
OFFICE, No. 83 EXCHANGE PLACE
PROVIDENCE, R. I.

CAMACHINE 6-C



—for quantity production of all kinds of stripping used by the rubber industry. If you make, use or sell stripping, write for information to—

CAMERON MACHINE CO.,
61 Poplar St., Brooklyn, N. Y

OPPOSES ORIENTAL LABOR ON PHILIPPINE ESTATES

"Those who want to grow rubber in the Philippines urge the Philippine Government to admit Oriental contract labor, reasoning that it would place the industry on a competitive level with other producing countries," says Vincente Villamin, a Filipino lawyer and economist, in a recent statement issued in New York. "No doubt this would be good for the rubber industry but it would be bad for other industries.

"If cheap imported labor is made available to the rubber industry by special legislation what decent government could withhold similar favor from the sugar, coconut, tobacco and other industries? The employment of this labor in the Philippines would provoke a great protest from powerful interests in America, translating itself into every manner of handicaps being placed in Philippine products entering America duty free.

"American labor organizations would raise the battle-cry of coolie menace to the American worker, and they are right. The sugar, tobacco and other industries in the United States not interested in the Philippines could be expected to move Congress to stop Philippine competing industries from throwing them out of business, and that would only be just. Their fears would be well founded because the Philippines is within the United States tariff wall.

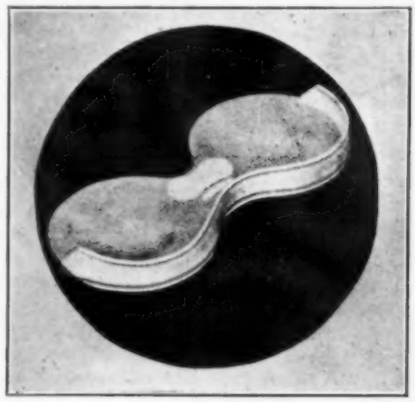
"Besides the above considerations, the admission of contract labor would lower the standard of living of the Filipino people and deprive Filipino laborers of work. Coolie labor under the American flag, even in the Philippines, would be a travesty on America's fair name. America's weapon against economic competition from any source is not wage reduction but efficieney and oft-times the tariff."

Firestone Trees Thriving

Harvey S. Firestone, president of the Firestone Tire & Rubber Co., Akron, recently held a short conference with C. V. Jones, manager, and A. J. Burch, assistant manager, of the Firestone branch at Jacksonville, Fla. He was told that the rubber trees the company planted in Florida are thriving, although the trees are not yet old enough to determine the practicability of growing on a commercial scale in Florida.

Kneeling Mat Marketed

A cellular rubber kneeling mat for domestic use was recently placed on the market by James Lyne Hancock, Ltd., 266 Goswell Road, London. The mat



may be washed and hung up when not in use. Made of rubber soft to the touch, the mat is useful in scrubbing tiled floors, in the garden and elsewhere about the home.

Business Council Meets

The newly-formed Business Council of the War Department held its first meeting in the office of the Assistant Secretary of War in Washington recently. Among civilians and reserve officers summoned to the meeting were George B. Dryden, president, Dryden Rubber Co., Chicago, Ill; and William C. Sprunance, vice president, E. I. du Pont de Nemours & Co., Wilmington, Del. The object of the council is to work out an efficient system of procurement for the army for use in time of war. Chiefs of several bureaus of the War Department were present at the meeting and sub-committees were named.

Ajax to Increase Stock

The Ajax Rubber Co., New York, recently filed notice with the New York Stock Exchange of its intention to increase its authorized capital stock from 500,000 to 1,000,000 shares.

PHILIPPINE PLANTATIONS ARE IN GOOD CONDITION

The Director of Forestry of the Philippines, referring to crude rubber culture in his annual report says "the conditions on these estates (Mindanao, etc.) were found to be equal to, if not better than, the existing conditions on the best Federated Malay States and Sumatra plantations. This is supported by the fact that while the economic depression in 1922 and 1923 was financially fatal to many plantations in the Federated Malay States and Sumatra, the Philippine plantations during this period were able to hold their own, producing and selling rubber at a profit in the same markets with the Middle East plantations.

"This was in spite of the lack of skilled labor and comparatively untrained supervising forces then employed....The soil and climatic conditions were found equal to the best among the rubber-producing countries.....The labor question was greatly exaggerated; there is sufficient labor in the Philippines."

Hood Opens New Warehouse

The Hood Rubber Co., Watertown, Mass., moved into its new two-story brick warehouse on Bay St. in the wholesale tire district of Los Angeles, Cal., April 1. The warehouse was especially designed to meet the company's requirements and is equipped with modern devices for the rapid handling of tires and other products. During 10 years business in Los Angeles the Hood company has been compelled to make several moves into larger quarters. The new warehouse, which provides approximately 15,000 square feet of floor space, will serve their needs for several years, officials say.

Lambertville Building

The Lambertville Rubber Co., Lambertville, N. J., manufacturers of rubber footwear, is erecting a warehouse to provide more adequate storage facilities. The building is to be of reinforced concrete, protected throughout by sprinklers. Large storage space is needed to accomodate large stocks in the late fall. The company has been utilizing a number of storage places but the new building will help take care of such needs.

"We have tried to indicate that Factice is of value in proofing stocks for qualities that other ingredients, including rubber itself, do not always give."

Extract from—
"Uses of Factice In Proofing."

RUBBER FACTICE OF HIGHEST QUALITY THE STAMFORD FACTICE STAMFORD CONN THE STAMFORD RUBBER SUPPLY CO

Est. 1900 Inc. 1919

THE KUHLKE MACHINE CO.

Formerly Jones & Kuhlke

AUTOMOBILE TIRE MOLDS and CORES

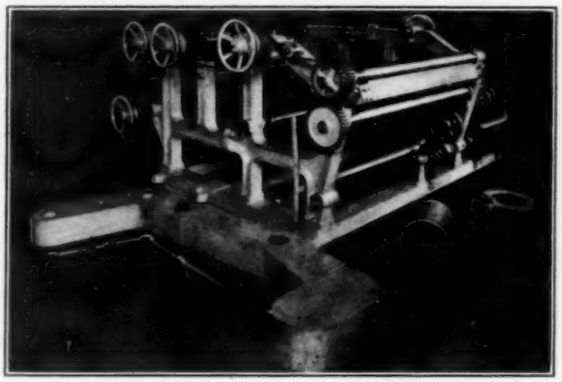
GENERAL MACHINE WORK

Akron, Ohio

FACTORY EQUIPMENT

DOUBLE LINING STRIPPER REDESIGNED BY SPADONE

The Spadone Machine Co., Inc., 15 Park Row, New York, recently designed its Double Lining Stripper and added many improvements. This machine is used for the same purpose as the Single Stripper, but will permit continual operation of a bias cutter, thereby affording maximum production. It is so arranged that a roll of fabric may be hung in place while the machine is in operation, ready to follow the roll which is being cut. In this way it is not necessary to stop the bias cutter for changing stock or removing linings and empty shells. The machine is a great time saver and it is said that it will greatly increase production without the aid of extra labor.



The Double Lining Stripper recently redesigned by the Spadone Machine Co., Inc., New York.

The Double Lining Stripper is strongly built to withstand the severe strain to which it is subjected. It is economical to operate, as a 64″ machine is driven with a five horsepower motor, directly connected to a Reeves variable speed drive. The Reeves Transmission is controlled with a friction clutch, and all gears are cut to assure silent operation. Bronze bearings are used throughout and idler gears are fitted with bronze bushings.

A stock roll up to 45″ in diameter may be taken on the Double Lining Stripper, which is so designed that all rolls of stock and liners can be placed in or removed from the machine by means of an overhead hoist or trolley. The machine is also equipped with a reverse drive so that in case a roll of stock is partially used the lining can be wound back on the stock roll by power, where heretofore a hand crank was used.

Every consideration has been given to safety by the Spadone Machine Co. in designing this machine. It will be noted that the guards covering the chain drives are in line with the top of the side frame of the Stripper, which permits a clear view of the material not only from the front and back but from either side.

The hand friction wheels are about 16″ in diameter, have ball bearings and are so arranged that they are stationary, even though the Stripper is running. This feature is of distinct advantage to the operator and will prevent the many minor accidents which are apt to occur when an operator takes hold of a revolving wheel. It is easy to pass the stock about the rolls because the two feed or pull rollers on the front of the machine have been spaced about 14″ apart, center to center. The top roll is also set in a cap bearing, which is placed on top of the side frame, and not into the frame as heretofore.

The Double Lining Stripper is about 5′ high and requires an approximate floor space of 12′ 6″ wide by 6′ 6″ deep. It weighs about 5,000 lbs. It does not require a foundation, being self-contained on a cast-iron bed plate.

New President for du Pont

Lammot du Pont was recently elected president of E. I. du Pont de Nemours & Co., Wilmington, Del., to succeed his brother, Irenee du Pont, resigned. Lammot du Pont is the eighth member of the du Pont family to head the company since the business was founded in 1802 and the third brother in succession to hold the presidency. P. S. du Pont was elected a member of the finance committee, succeeding Irenee du Pont. Lammot du Pont was also elected chairman of the executive committee, succeeding Irenee du Pont.

Irenee du Pont, who retired as president, was elected chairman of the board of directors and chairman of the finance committee.

Issue Malayan Statistics

A cable has just been received in London from the Rubber Growers' Association's local secretary at Kuala Lumpur, F.M.S., stating that the preliminary figures of standard production in the Malayan restriction area for the current restriction year are as follows:—

	TONS
F.M.S.	166,950
Straits Settlements	34,544
Johore	64,491
Kedah	24,236
Kelantan	7,080
Tregganu	1,500

It is added that potential production of Singapore and Penang districts, which are outside the restriction area, for the current restriction year, at 100 per cent release, are estimated at 516 tons monthly, in addition to restriction area export.

Suspends for Repairs

The Converse Rubber Shoe Co., Malden, Mass., recently announced the closing of its factory from March 20 on to make repairs to machinery and to take inventory. February sales are said to have been the largest in the history of the company. When the plant resumes, 1,500 operatives will return on a full time schedule.

The C. P. HALL COMPANY

118 Central Savings and Trust Bldg., Akron, Ohio

Announces its Appointment as Sales Agent for

WHITE FLOSS and TUSCAN CLAYS

(Water Ground) *(Dry Ground)*

MANUFACTURED BY

Thompson, Weinman & Company, Inc.,
52 Vanderbilt Ave., New York, N. Y.

The Economical Use of Reclaimed Rubber as a Substitute for New Rubber

Comparison of the Value of Existing Reclaims and New Rubber for Use in Most Economical Manner

By J. M. Bierer and C. C. Davis
Boston Woven Hose & Rubber Co., Cambridge, Mass.

THE PAST ten years have made it clear that plantation rubber is not stable in price and that the latter must be expected to fluctuate in a manner which cannot be easily foreseen. This fluctuation is due chiefly to the fact that production is slow and cannot readily meet the changing requirements of the market. The manufacturing problem is in turn made difficult by this rise and fall in price, for it is the aim of the manufacturer to maintain the quality of his products as nearly uniform as possible in the most economical manner.

In this attempt to maintain uniformity the most available means is the use of reclaimed rubber. If the price of rubber did not vary, there would be little need of frequent changes in rubber compound except for developments in methods of compounding in general. With a rising rubber market, however, it is only by reducing the proportion of new rubber and by the aid of reclaimed rubber that uniform quality can be maintained without increasing the cost.

In view of these facts it is imperative that rubber technologists be alert to fluctuations in the rubber market and be prepared to alter the amounts of new and reclaimed rubber in their compounds so that the quality of the latter may be maintained in the most economical manner.

The Technical Aspects

The present paper deals with the replacement of new rubber by reclaimed rubber as a purely technical problem. It will show when to use new rubber and when to use reclaimed rubber to the best advantage, in short, it will show the value of reclaimed rubber at any market price of new rubber. It will also show how advantage was taken of this information by one manufacturer to use large quantities of reclaimed rubber and little new rubber when new rubber was high in price and relatively little reclaimed rubber when new rubber was low. The cost of finished reclaimed rubber will also be shown for different prices of scrap tires. An illustration will be given of the use of antioxidants to improve the aging of a cheap compound so that excellent aging properties can be obtained in a compound otherwise of short life. Finally it will be shown that the use of selenium as a curative increases the resistance to abrasion so greatly that the same quality can be obtained with less rubber.

With the advent of the balloon tire there is so great a consumption of new rubber that if it is possible to replace even a part of the new rubber by old tires, there is an enormous saving. With just as high a mileage the replacement of perhaps ten per cent of new rubber by reclaimed rubber means that as great a number of tires of similar quality can be made with the consumption of ten per cent less new rubber. This in turn means in this country alone a decrease of at least 70,000,000 pounds or the output of about 175,000 acres per year, even disregarding any increase in production. A saving of this magnitude is all that is necessary to alleviate a shortage, for contrary to popular opinion a sweeping reduction in the use of new rubber is not necessary to create a normal price once more.

There are at least four methods which may be followed by technical experts and the technical resources of the world in the attempt to produce rubber goods more economically.

1) Synthesize new rubber of a quality which based on its cost is a satisfactory substitute for natural rubber.
2) Improve greatly the quality of reclaimed rubber so that the rubber component of the reclaimed rubber is more nearly the equal of new rubber.
3) Determine the relative value of new rubber and existing reclaimed rubbers and with these data utilize new and reclaimed rubber in the most economical manner.
4) Utilize new compounding methods and materials in conjunction with any of the foregoing.

The synthesis of new rubber is in an uncertain state. Artificial rubber similar to natural rubber has we believe never been made, nor has a commercial process for making the inferior artificial product yet been developed to compete with plantation rubber.

Up to date the plantations have devoted their economic resources to developing and standardizing their output and to supplying the world with new rubber. This they have done in a manner which deserves the highest of praise. The time is approaching however when their resources must be devoted more to the application of agricultural chemistry and scientific horticulture, so that the yield and quality of new rubber may be improved. Only with these methods can the plantation industry face the future with assurance that natural rubber will not be displaced by artificial rubber.

Wiegand has suggested that the better application of physics to compounding gives a means of formulating rubber compounds of a quality as yet unattained. May we not look forward to the day when new rubber itself has been so improved that properties superior even to those foreseen by Wiegand can be attained with the combined aid of this supertype of new rubber and his suggestions?

Attempts to regenerate new rubber from scrap rubber have given products which fall short even of artificial rubber in quality. In fact since the development of the alkali process by Cowan and Marks at the Boston Woven Hose & Rubber Co. nearly thirty years ago there has been no progress of any importance. Whether the problem will be solved in the near future with production of a reclaimed rubber of the same properties as the original rubber is uncertain.

Until the synthesis or the regeneration of rubber is accomplished and a product closely resembling new rubber or a product equivalent in value is prepared, a temporary means must be found for utilizing in the most economical manner materials already available.

It is solely with this last phase of the problem that the present paper deals.

Properties of the Reclaim

The reclaimed rubber used in all the experiments was prepared from black automobile tires. The whole tires with the beads removed were cracked, devulcanized with aqueous sodium hydroxide, washed free of the latter, dried and refined.

The following constants were obtained for the finished reclaim:

Color	Black
Specific Gravity	1.18
Acetone Extract	7.5% by weight
Ash	20% by weight

Cured in a press with the addition of five per cent of sulfur only, the following physical tests were obtained:

Presented before the joint meeting of the Division of Rubber Chemistry and the Akron Section of the American Chemical Society, Akron, Ohio, Feb. 22 and 23, 1926. Reprinted through courtesy of *Industrial & Engineering Chemistry*.

Cure	Ultimate Elongation	Tensile Strength lbs. per sq. in.
20 @ 142°C.	410%	780
30 @ 142°C.	450	850

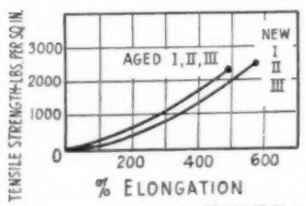
Cured with the addition of 3% sulfur, 0.5% diphenylguanidine and 3% zinc oxide the physical tests were as follows:

Cure	Ultimate Elongation	Tensile Strength lbs. per sq. in.
20 @ 142°C.	400%	1330
30 @ 142°C.	320	1150

There are many rubber compounds in which the desired quality can be obtained with the use of new rubber alone or with new rubber and reclaimed rubber or with reclaimed rubber alone, in each case of course with the addition of accessory ingredients. The desired quality may be the resistance to abrasion, the ultimate elongation or strength, the resilient energy or any other useful index of quality. An example of this might be a new rubber compound having an ultimate elongation of 500 per cent and a tensile strength of 1500 lbs. per sq. in., which can be compounded with new rubber alone or with reclaimed rubber and proportionately less new rubber. The compounds which are thus amenable to replacement represent important commercial rubber products.

Replacement of new rubber by reclaimed rubber is easily carried out in a compound containing new rubber and inert fillers of any character. With the substitution of reclaimed rubber for new rubber there must be simultaneous elimination of inert filler.

	I	II	III
Smoked Sheets	100	75	50
Reclaimed Rubber	—	50	100
Whiting	100	55	10
Sulfur		5.	
D.P.G.		0.5	
Zinc Oxide		5.	
Hard Asphalt (MR)		20.	



Aged in oxygen 300 lbs. per sq. in. 24 hours 60°C.

FIGURE 1

An illustration of this is compound I.

If part or all of the new rubber is replaced by a two-fold weight of reclaimed rubber, with no other change, the physical properties are altered. But if at the same time a certain proportion of whiting is eliminated, giving for example compounds II and III, all three compounds I, II and III have practically the same stress-strain curves at certain cures, as in Figure 1.

Not only is the quality similar when new, but also after aging in oxygen under 300 lbs. per sq. in. pressure for 24 hours at 60°C. The magnitude of this change in the whiting depends upon the quality of the reclaimed rubber.

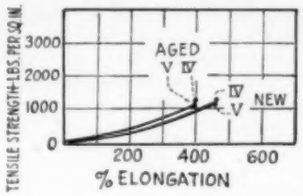
Likewise cheaper compounds of the following compositions IV and V with and without reclaimed rubber were found to give the same stress-strain curves at the appropriate cures.

Not only were the stress-strain curves practically the same when the stocks were new, but also after aging for 24 hours in oxygen under 300 pounds per square inch pressure at 60° C. Figure 2 will show these results.

To determine the value of the reclaimed rubber in these compounds it is necessary to calculate its cost when the three compounds not only cost the same but have the same quality. Since most rubber products are sold in individual units, it is best to compare costs on a volume basis.

	IV	V
Smoked Sheets	100	50
Reclaimed Rubber	—	100
Whiting	200	110
Sulfur	5.	
D.P.G	0.5	
Zinc Oxide	5.	
MR	20.	

The compounds with and without reclaimed rubber which have the same quality are therefore assumed to have the same volume cost. Knowing the cost of each individual ingredient



Aged in oxygen 300 lbs. per sq. in. 24 hours 60°C.

FIGURE 2

in the compound containing reclaimed rubber, the cost of reclaimed rubber, the only unknown, can be calculated for any cost of rubber.

Without entering into the mathematics involved, it may be calculated that when new rubber is A units per pound, the reclaimed rubber used in the foregoing experiments has a value of 0.495 A. This means that it is less economical if it is above 0.495 A per pound, is of the same value at 0.495 A per pound and is more economical below 0.495 A per pound. As the cost of rubber increases, the value of reclaimed rubber also increases and this relation is a linear one. With new rubber at $1.00 per pound, the reclaimed rubber would therefore have a maximum value of $.495. Since a linear relation is involved, it may be shown very simply in graphical form as in Figure 3.

Compounds of this character are similar in their general form to mechanical goods compounds of medium quality, and so represent the use of reclaimed rubber in mechanical goods.

Adaptability of the Methods

This comparison is based on a duplication of stress-strain curves (resilient energy), including ultimate elongation and tensile strength, and does not consider the comparative resistance to abrasion, the hysteresis effect, the electrical properties or any other of a number of properties other than the aging. The same relative values of new rubber and of reclaimed rubber do not necessarily apply to these other properties, and since any one of them may be as important as the resilient energy, a series of comparative tests must be carried out for each property concerned.

Such relations, though at first sight somewhat academic, have actually been utilized for a number of years by one manufacturer of mechanical goods to govern the consumption of new rubber and of reclaimed rubber. Figure 4 shows (1) the average price of new rubber for the particular period and

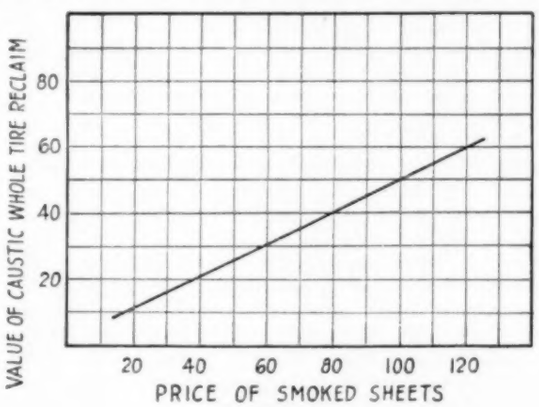


FIGURE 3

(2) the amount of new rubber consumed at the same time expressed as per cent of the maximum of 1921-22.

From this may be seen the relatively large amount of new rubber consumed when it was cheap and the small amount when the market was high, in other words, what has actually been accomplished in manipulating compounds so that in spite of a fluctuating rubber market the manufacturing cost of the compounds was maintained as nearly uniform as possible, with of course no change in the quality.

It may also be of interest to show the relation between the cost of rubber scrap and the cost of a typical finished reclaimed rubber. As an example of this, the caustic whole tire reclaimed rubber used in the foregoing experiments is chosen. Its cost in the finished form may be obtained by a few simple calculations based on the market price of scrap tires, the cost of sodium hydroxide and the other factors involved in the process. Plotting the market price of scrap whole tires against the cost of the finished caustic whole tire

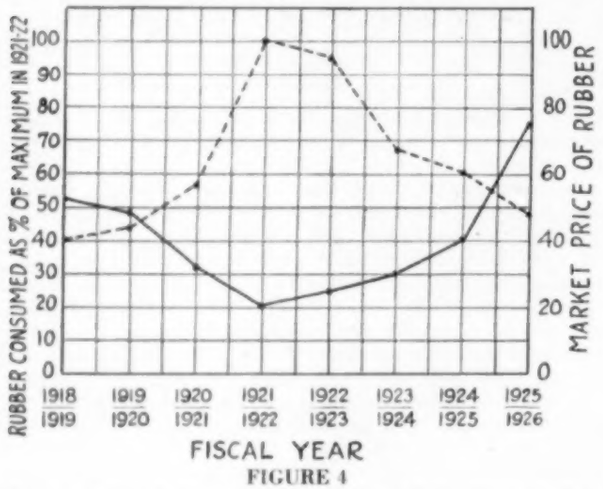


FIGURE 4

reclaim, Figure 5 is obtained. With whole tires at $.015 per pound, a reclaimed rubber of this type should cost in finished form about $.09 per pound.

Passing now from these general considerations, let us see to what use these concepts may be put in tire treads.

Tire Treads

In dealing with tire treads, the first consideration is the resistance to abrasion. For this reason abrasion tests are shown in all cases. These were carried out in every case on machines constructed by the New Jersey Zinc Company both with a feldspar and a quartz track. Some of these tests were in turn compared with tests of the same materials on the latest machine of the U. S. Rubber Company and on that developed by W. W. Evans of the B. F. Goodrich Company. Contrary to the work of the Bureau of Standards, to be described below, in no instance was a discrepancy found between the four methods of wearing the compounds.

The graphs are constructed on an empirical basis with the units increasing with increase in resistance to abrasion.

The resistance to abrasion was compared only among tire compounds which were found to give satisfactory aging properties. In other words, if a tire compound containing reclaimed rubber wore as well as the corresponding base rubber compound simply because it was overcured and harder, the results were considered to be faulty. Unless a compound containing reclaimed rubber showed practically as good aging properties as the base rubber compound when tested for 48 hours in oxygen under 300 pounds per sq. in. at 60° C., its abrasion was not compared with its corresponding compound containing no reclaimed rubber, i.e., no results are given for compounds of unsatisfactory aging properties.

As a basis for comparing the resistance to abrasion, those compounds with satisfactory aging properties which showed the highest proof resilience were chosen.

With new rubber at $.75 per pound and caustic whole tire reclaimed rubber at $.09, the compounds containing reclaimed rubber are in all cases cheaper than the base compound with new rubber alone, and so where the abrasion is as good with reclaimed rubber, the latter can be used economically.

In view of the fact that the abrasion tests were compared on the basis of the maximum proof resilience of compounds which were of satisfactory aging quality, both of which properties were practically the same when the abrasion was the same, the hardness is not included in the results. Moreover the difference in the hardness between the base compounds containing new rubber alone and those with reclaimed rubber were no greater than the differences among individual tires of an individual manufacturer.

In work recently published by the U. S. Bureau of Standards, (Technological Paper No. 294), Holt and Wormeley have attempted to show that "tests on tire treads containing reclaimed rubber indicate that if reclaimed rubber is used the resistance to wear is lowered roughly in proportion to the quantity used." Furthermore it is stated that with 25 per cent reclaimed rubber, the resistance to abrasion is about 70 per cent as good as the corresponding tread stock containing rubber alone.

The compounds used by Holt and Wormeley to make these comparative tests were compounds VI, VII, VIII and IX. These compounds, it is stated, decrease progressively in their resistance to abrasion.

Table I—Bureau of Standards Formulae

	VI	VII	VIII	IX
Smoked Sheets	61.1	51.3	45.925	41.175
Reclaimed Rubber	—	10.	18.	25.
Sulfur	3.	3.	3.	3.
Hexa	0.4	0.45	0.45	0.45
Palm Oil	2.	3.	3.	3.
MR	5.	5.	5.	5.
Zinc Oxide	12.5	11.25	8.625	6.375
Carbon Black	16.	16.	16.	16.
	100.	100.	100.	100.
Cost per cubic foot	$35.10	$31.00	$28.00	$25.90

The costs which are given are the costs per cubic foot with rubber at $.75 per pound and alkali reclaimed rubber at $.09 per pound, which represent values not decidedly different from the present market price of rubber and the manufacturing cost of caustic whole tire reclaimed rubber.

It is further stated that compound VI with new rubber alone was formulated by two of the largest tire manufacturers, and so it may be regarded as a properly balanced tire tread of good wearing qualities.

The most obvious defect in the method pursued by Holt and Wormeley is the progressive substitution of new rubber by nearly the same weight of reclaimed rubber. Since a pound of reclaimed rubber is not equivalent in value to a pound of new rubber, the direct and progressive replacement of new rubber by reclaimed rubber, i.e., of a superior ingredient by a smaller volume of an inferior ingredient without further essential change, will obviously give progressively decreasing quality. Of course the cost also decreases, but the evident object of the work, as stated in the first paragraph

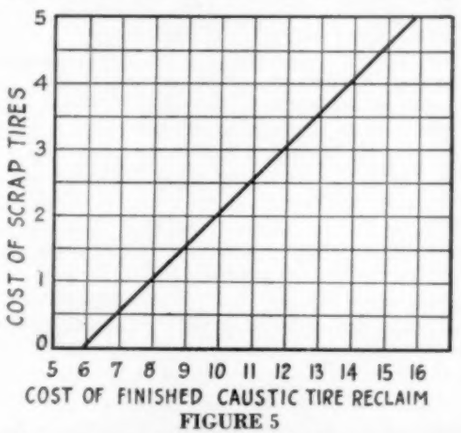


FIGURE 5

of the article was to determine "whether an economic gain would result from the greater use of reclaimed rubber in tires, to which end tests were conducted for the purpose of determining the influence of reclaimed rubber on the resistance to wear." The experiments however show only that both the quality and the cost decrease, and do not show the relation between the decrease in each.

Moreover the replacement of such large volumes of new rubber by reclaimed rubber gave, as the volume cost of the compounds indicates, compounds which were so cheap that it was not to be expected that they would have the same quality as the compound with new rubber only.

It is possible to replace a certain amount of new rubber in compound VI of Holt and Wormeley by twice the amount

of reclaimed rubber and obtain compounds which are commercially as good as those containing new rubber alone and which are cheaper as well. Contrary to their results, which indicate that reclaimed rubber cannot be substituted for new rubber even in small amounts without loss of resistance to abrasion, it is possible to replace a small amount of rubber by reclaimed rubber and by other suitable changes, to make compounds which will wear as well and give the same stress-strain curves.

	VI	X	XI	XII	XIII
Smoked Sheets	61.1	58.	55.	52.	49.
Reclaimed Rubber	—	6.	12.	18.	24.
Sulfur	3.	3.	3.	3.	3.
Heza	0.4	0.4	0.4	0.4	0.4
Palm Oil	2.	1.6	1.	0.6	—
MR	5.	4.	3.	2.	1.
Zinc Oxide	12.5	11.	9.6	8.	6.6
Carbon Black	16.	16.	16.	16.	16.
	100.	100.	100.	100.	100.

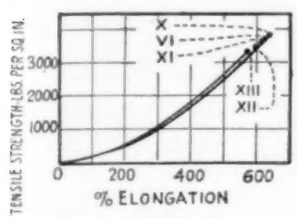


FIGURE 6

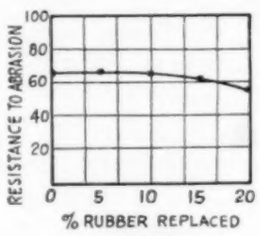


FIGURE 7

Compounds X, XI, XII and XIII are unlike those of Holt and Wormley in that a superior ingredient is not replaced by the same weight (and therefore by a smaller volume) of an inferior ingredient. Instead these compounds comprise a series in which the weight of new rubber removed is replaced by twice its weight of reclaimed rubber. Assuming an original rubber content of the reclaimed rubber of 50-60 per cent, this two-fold replacement represents roughly a substitution for the original rubber of the same amount of reclaimed rubber-equivalent.

From Figs. 6 and 7 it is evident that part of the new rubber in this tire tread compound may be replaced by reclaimed rubber without materially diminishing the resistance to abrasion or changing greatly the stress-strain curve, provided that new rubber is replaced by a correspondingly greater amount of reclaimed rubber.

Typical Tire Treads With Reclaim

Passing to another tire tread compound of a prominent manufacturer of tires, and replacing new rubber by a greater amount of reclaimed rubber, compounds XIV, XV, XVI and XVII were tested.

	XIV	XV	XVI	XVII
Smoked Sheets	51.	48.4	46.	43.4
Reclaimed Rubber	—	5.	10.	15.
Sulfur	2.	2.	2.	2.
Ethylidene-aniline	1.	1.	1.	1.
Mineral Oil	1.5	1.5	1.5	1.5
MR	5.	5.	5.	5.
Zinc Oxide	20.5	17.	13.5	10.
Carbon Black	19.	20.1	21.	22.1
	100.	100.	100.	100.

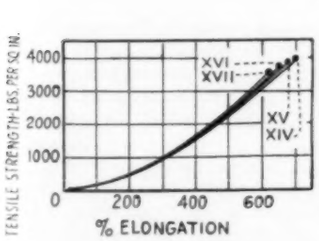


FIGURE 8

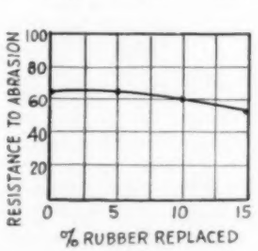


FIGURE 9

Once more the weight of new rubber removed was replaced by twice its weight of reclaimed rubber and the accessory ingredients varied. The results given in Figures 8 and 9 show that it is possible in this case also to replace a small proportion of new rubber by a greater proportion of reclaimed rubber and retain the same resistance to abrasion.

Still another tire tread of the composition XVIII was tested with increasing replacements of new rubber by correspondingly greater amounts of reclaimed rubber, giving the series of compounds XIX, XX and XXI.

	XVIII	XIX	XX	XXI
Smoked Sheets	58.	55.1	52.2	49.3
Reclaimed Rubber	—	5.8	11.6	17.4
Sulfur	1.75	1.75	1.75	1.75
D.O.T.G.	0.5	0.5	0.5	0.5
Mineral Oil	1.25	1.25	1.25	1.25
MR	4.	4.	4.	4.
Zinc Oxide	18.5	16.9	15.4	13.8
Carbon Black	16.	14.7	13.3	12.
	100.	100.	100.	100.

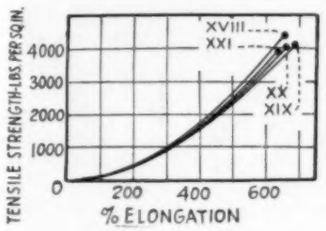


FIGURE 10

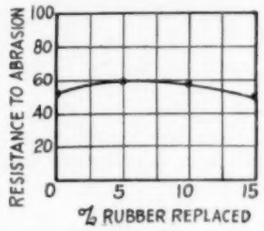


FIGURE 11

Figures 10 and 11 show that partial replacement of new rubber by a greater amount of reclaimed rubber does not necessarily impair the quality of a compound of this type.

Though the next formula is not strictly a tire tread formula it is of even better quality and will probably outwear any commercial tire tread. In its essential form it was suggested by one of our leading rubber technologists as a compound of extraordinarily high resistance to abrasion.

Stocks of the Highest Quality

Replacing rubber as before progressively by greater amounts of reclaimed rubber, the series represented by compounds XXII, XXIII, XXIV and XXV were tested.

	XXII	XXIII	XXIV	XXV
Smoked Sheets	60.	57.	54.	51.
Reclaimed Rubber	—	6.	12.	18.
Sulfur	2.4	2.4	2.4	2.4
Ethylidene-aniline	0.45	0.45	0.45	0.45
D.P.G.	0.45	0.45	0.45	0.45
Stearic Acid	0.3	0.3	0.3	0.3
Mineral Oil	0.3	0.3	0.3	0.3
Zinc Oxide	12.	8.	4.	—
Carbon Black	24.1	25.1	26.1	27.1
	100.	100.	100.	100.

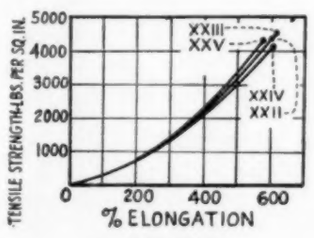


FIGURE 12

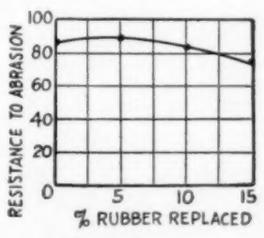


FIGURE 13

Figures 12 and 13 indicate that again it is possible in the highest type of compound to retain the quality upon substitution of new rubber by reclaimed rubber.

To meet the objection that the compounds containing reclaimed rubber were as good as the compound containing only new rubber because the carbon black was increased and the zinc oxide diminished, two more similar series were tested. In compounds XXII, XXVI and XXVII the ratio of zinc oxide and carbon black was kept constant and in compounds XXII, XXVIII, XXIX and XXX the zinc oxide was actually increased at the expense of the carbon black.

	XXII	XXVI	XXVII
Smoked Sheets	60.	57.	54.
Reclaimed Rubber	—	6.	12.
Sulfur	2.4	2.4	2.4
Ethylidene-aniline	0.45	0.45	0.45
D P.G.	0.45	0 45	0.45
Stearic Acid	0.3	0.3	0.3
Mineral Oil	0.3	0.3	0.3
Zinc Oxide	12.	11.	10.
Carbon Black	24.1	22.1	20.1
	100.	100.	100.

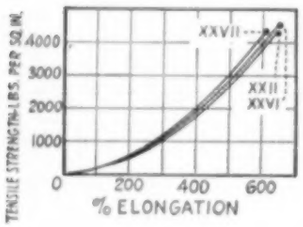


FIGURE 14

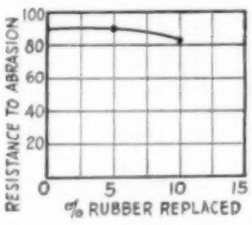


FIGURE 15

	XXII	XXVIII	XXIX	XXX
Smoked Sheets	60.	57.	54.	51.
Reclaimed Rubber	—	6.	12.	18.
Sulfur	2.4	2.4	2.4	2.4
Ethylidene-aniline	0.45	0.45	0.45	0.45
D P.G.	0.45	0.45	0.45	0.45
Stearic Acid	0.3	0.3	0.3	0.3
Mineral Oil	0 3	0.3	0.3	0.3
Zinc Oxide	12.	13.	14.	15.
Carbon Black	24.1	20.1	16.1	12.1
	100.	100.	100.	100.

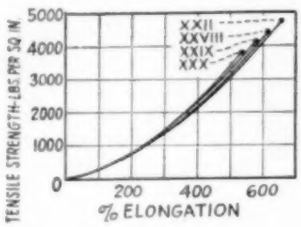


FIGURE 16

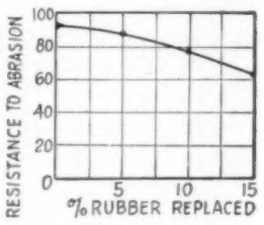


FIGURE 17

Figures 14 and 15 give the tests of the second series and Figures 16 and 17 those of third series. The results make it evident that in replacing new rubber by reclaimed rubber in tires better results can be obtained by maintaining a high proportion of carbon black and reducing the zinc oxide than by reducing the carbon black for the sake of retaining the original amount of zinc oxide.

Compounds XXII, XXIV and XXV containing reclaimed rubber are superior to compounds XXVIII, XXIX and XXX and in general the greater the proportion of zinc oxide used at the expense of carbon black the poorer the resistance to abrasion.

Heat Conductivity

In view of the fact that excellent results were obtained by increasing the amount of carbon black when new rubber was replaced by reclaimed rubber with the further advantage that it was cheaper than increasing the zinc oxide, it was important to know whether this increase of carbon black affected the heat conductivity.

One of the advantages claimed for zinc oxide in tire treads is that it gives better heat conductivity than carbon black.

For this reason it was of interest to determine the heat conductivity of compounds XXII, XXIV and XXV. The latter two have less zinc oxide and more carbon black than compound XXII. Nevertheless the heat conductivities of the three compounds were found to be as follows:

Compound	Heat Conductivity in B.T.U. per 24 hrs. per sq. ft. per 1" thickness per 1°F.* Value
XXII	31
XXIV	33
XXV	36

In spite of compounds XXIV and XXV containing more carbon black and less zinc oxide than compound XXII, their heat conductivities were slightly superior. This renders it possible in replacing new rubber by reclaimed rubber in a tire to increase the carbon black and decrease the zinc oxide within reasonable limits without danger of materially poorer heat conductivity.

The Possibility of Using Reclaim

It has been shown that it is possible to replace part of the new rubber, even in a tire tread, by a correspondingly greater amount of suitable reclaimed rubber without impairing the proof resilience or the resistance to abrasion. The method described may be regarded as replacement of part of the new rubber by approximately the same volume of rubber component in the reclaimed rubber, with a change in the pigments, fillers, curatives and accelerators to balance the loss of quality due to the fact that a given volume of old rubber component in the reclaimed material is not of the same quality as a like volume of new rubber.

Inasmuch as rubber products with compounds containing reclaimed rubber are often just as satisfactory as those containing only new rubber and are lower in cost, it would be unfortunate if large consumers, such as the U. S. Government, should fail to recognize the proper place of reclaimed rubber in their specifications for rubber goods.

There are however other aids to the use of reclaimed rubber which cannot fail to become of increasing importance, among which are shown the influence of selenium and of antioxidants.

Influence of Antioxidants

One of the chief obstacles to the use of inner tube reclaimed rubber is the fact that most grades are very unreliable in their aging properties. Any means therefore of improving the aging is of great advantage in extending the use of inner tubes, which are potentially of great value.

Compound XXXI represents a cheap red compound containing a high proportion of devulcanized red inner tubes.

	XXXI
Smoked Sheets	6.
Reclaimed Red Inner Tubes	60.
Sulfur	2.5
D.P.G.	0.25
Paraffin Wax	1.
Red Iron Oxide	2.
Zinc Oxide	2.
Whiting	26.25
	100.
No addition	—
Pine Tar	3.
"Agerite"	1.
"V.G.B."	1.5

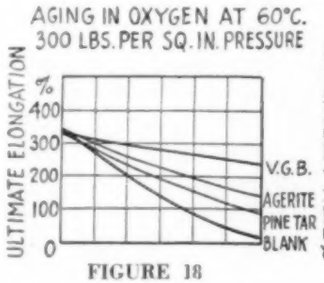


FIGURE 18

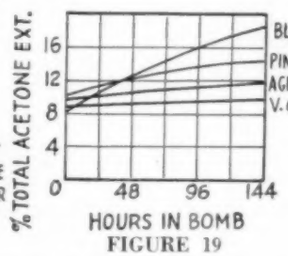


FIGURE 19

Figs. 18 and 19 show the results of aging in oxygen under 300 lbs. per sq. in. pressure at 60° C. for increasing periods, with and without the use of an antioxidant.

Four separate compounds are shown, three of which contain an antioxidant. It is evident from the changes in the ultimate elongation and in the acetone extract after aging that an antioxidant improves so greatly a compound containing reclaimed inner tubes that reclaimed rubber of this type may become thoroughly reliable.

One of the greatest interest in connection with resistance to abrasion is the influence of selenium*. If, instead of vulcanizing with sulfur alone, selenium is also used, there occurs an extraordinary increase in the resistance to abrasion. This can be illustrated in compounds XVI, XXXII, XXXIII and XXXIV.

*Note—Tests performed by the Dept. of Physics, Mass. Institute of Technology.

*For permission to use selenium, the authors are indebted to C. R. Boggs and the Simplex Wire & Cable Co., of Cambridge, Mass., where it was first discovered that selenium greatly increased the resistance to abrasion of rubber compounds and where the first patent on selenium as a vulcanizing agent is held.

Table II—Influence of Selenim on Abrasion

	XVI	XXXII	XXXIII	XXXIV
Smoked Sheets	46.	46.	46.	46.
Reclaimed Rubber	10.	10.	10.	10.
Sulfur	2.	2.5	2.	2.
SELENIUM	—	—	0.5	1.25
Ethylidene-aniline	1.	1.	1.	1.
Mineral Oil	1.5	1.5	1.5	1.5
MR	5.	5.	5.	5.
Zinc Oxide	13.5	13.5	13.5	13.5
Carbon Black	21.	21.	21.	21.
	100.	100.5	100.5	101.25
Cure	Relative Resistance to Abrasion			
20 @ 142°C	34	48	81	90
30 @ 142°C	57	63	89	97
45 @ 142°C	64	72	90	86
60 @ 142°C	63	72	72	55

When the sulfur in compound XVI is increased, the resistance to abrasion is also increased, but if this additional sulfur is replaced by the same weight of selenium, the increase in resistance to abrasion is far greater. If the replacement is carried out in the proportion of 2.5/1 (the ratio of the atomic weights of selenium and sulfur) the resistance to abrasion becomes of extraordinary character. A comparison of the resistance to abrasion of the four compounds at different cures shows that with the aid of selenium, compound XVI containing considerable reclaimed rubber becomes of greater resistance to abrasion than the best compound shown previously, viz., compound XXVI, though the former is far poorer without selenium.

Selenium therefore offers a means of obtaining in a given compound a higher resistance to abrasion than has been attainable heretofore, or of obtaining the same resistance with a large reduction in the percentage of rubber and with a saving in money.

Conclusions

Reclaimed rubber is of great value in maintaining the quality of rubber compounds uniform during market fluctuations in the price of rubber. Since however it is inferior in quality to new rubber, direct replacement of new rubber by the same weight, as described in recently published work of the U. S. Bureau of Standards, cannot be expected to give the same quality. On the other hand partial replacement of new rubber by twice the weight of alkali tire reclaimed rubber, with proper alteration of the other ingredients, does not change many useful properties of the compound. The extent to which new rubber may be thus replaced depends upon the quality of the reclaimed rubber and of the rubber compound, the higher grade the latter the smaller the replacement practicable.

In compounds such as tire treads the resistance to abrasion may not be impaired when as high as ten per cent of new rubber is replaced by tire reclaimed rubber. A small increase in carbon black and decrease in zinc oxide simultaneous with this introduction of reclaimed rubber is conductive to better wearing properties and does not influence materially the heat conductivity.

By comparing rubber compounds of the same quality with and without reclaimed rubber, it is possible to derive a relation between the cost of rubber and the value of a reclaimed rubber. Only by utilizing such a relation and altering the relative amount of new and of reclaimed rubber can the manufacturer maintain the quality of his rubber products uniform in the most economical manner as the price of rubber changes.

Reclaimed rubber of poor or unreliable aging properties can be so greatly improved by the use of antioxidants that rubber compounds containing large amounts of such reclaimed rubber may have excellent aging properties.

The addition of small amounts of selenium to rubber compounds increases the resistance to abrasion so greatly that the rubber content may be materially reduced without diminishing the original resistance. The latter fact may have great potential value in tire compounding.

Acknowledgement

We take this occasion to acknowledge the part played by A. M. Varney and V. G. Davis, both of whom by their assistance were of great aid in facilitating the work.

REVIEW DESK

LEAD OLEATE 999 AND ITS EFFECT UPON THE VARIABILITY IN CRUDE RUBBERS. 10 pp. 5″ x 7″. The Stamford Rubber Supply Co., Stamford, Conn.

The compilers of this booklet have succeeded in reducing a broad subject to a most intelligible and concise basis. The story of No. 999 Lead Oleate and its use in the rubber industry is given in a series of brief explanations and the value of this product as a stabilizing power established.

Lead Oleate is a compounding ingredient containing peculiar specific properties: Slight acceleration of cure, lubrication in tubing machine operation, prevention of blooming of compounds in the raw state and stabilization of the variabily encountered, particularly in the lower grades of rubber, giving a more uniform cure and increased tensile strength.

* * *

GOODRICH CUTLESS BEARINGS. 6¼″ x 9¼″. Loose-leaf catalog. The B. F. Goodrich Rubber Co., Akron, Ohio.

The Cutless Bearing is similar to a metal bearing in design except that it is lined with a tough, resilient soft rubber compound known as "Olivite". Four years of tests and actual use have proved these bearings to be a successful solution of bearing troubles wherever water or any other non-oily liquid is available to provide the necessary lubrication. Principal advantages over metal bearings are: Elimination of cutting and scoring; greatly increased durability; lessened shaft vibration; and inexpensive lubrication.

This attractive catalog contains unassailable arguments in favor of the adoption of Cutless Bearings to replace babbitted or bronze bearings. It contains answers to many bearing questions in the pump industry, and in the ship and motorboat industries. A section is also devoted to Cutless Sealing Rings for use on hydraulic turbines.

* * *

ZINC OXIDE: History, Manufacture and Properties as a Pigment. By Dalton B. Faloon, B.S. 145 pp. Bound in cloth. Published by D. Van Nostrand Co., New York City, $1.75.

The history of zinc oxide, its development in recent years and its importance to industry are treated in a most interesting manner in this book. The author has attempted to arrange general information by stripping the subject of technical terms and writing clearly for the average reader who desires the complete story of this pigment.

Chapter eight, devoted to Specifications for the Physical and Chemical Qualities of Zinc Oxides, contains information of interest to the rubber manufacturer. Lead free Zinc Oxide for rubber compounding and Superfine rubber makers Zinc Oxide are separately treated and their physical and chemical properties listed.

Mr. Falloon has collected in one book information scattered through many volumes on industrial chemistry and kindred subjects, and gives much data never before published.

* * *

INTERNATIONAL TRADE IN MACHINERY BELTING. 74 pp. Released by the Department of Commerce. Government Printing Office, Superintendent of Documents, Washington. 15c a copy.

During 1924 the United States supplied nearly 20 per cent of the total amount of machinery belting exported from all producing countries. Of this amount, 71 per cent was classified as rubber belting, as compared with 22 per cent leather belting and 7.5 per cent cotton belting.

The United Kingdom leads all other countries in annual exports of machinery belting, supplying 41 per cent of the total in 1924. In the rubber and balata trade the United Kingdom ranks second to the United States; rubber belting exports from the United States constituted over 38 per cent of the total exports of rubber and balata belting from all countries in 1923, while exports of balata and rubber belting from the United Kingdom was 29 per cent of the total.

Pertinent facts, such as these, are given in this publication and the export trade of each competing country is treated in a separate section, the trend of the trade from 1920 to 1924 being furnished and the statistics of exports to foreign markets being stated in detail.

Utilization of Extraction Steam

Mechanisms Used to Regulate Steam Pressure and Speed in Conjunction with the Operation of Steam Turbines

By R. G. Standerwick
General Electric Company

THIS paper deals with the methods of regulating flow of steam through turbines, with particular reference to extraction and mixed pressure applications. The descriptions given, apply to the General Electric Company's 3600 RPM units.

The usual speed regulating governor consists of a simple spring loaded fly-ball governor driven from the main shaft by means of a worm gear at approximately 1/6 of the turbine speed. This governor has a possible speed range of from about 500 to 750 RPM and a tolerably straight line characteristic between these extreme points. The governor is so arranged that the speed may be changed over a wide range by hand or by the synchronizing motor while the unit is in operation. This governor controls the flow of high pressure steam to the turbine, and is employed in the full line of turbines which is being built at the present time, whether they are for straight condensing operation or to be used for extraction purposes, so that the machine is always protected against over-speeding by this mechanism or some slight modification of it.

In addition to this speed control mechanism, there is, of course, the emergency governor, which if the turbine should by any possible accident to the governor exceed the speed at which this control mechanism is supposed to work, will limit its speed and entirely shut off the steam after an increase of 10% of normal speed value has been reached. This governor is a simple bolt type emergency governor mounted directly on the main shaft of the turbine, whose action is to immediately close a quick closing valve.

The next in order will be the simplest form of turbine from which low pressure steam is obtained, i.e., the single or multistage back pressure turbine. Such turbines receive steam from the boilers, and, after utilizing as much energy as is available, exhaust steam at anywhere from 1 to 200 lb. pressure. The pressure in the exhaust casing may be held essentially constant by the use of a back pressure regulator. This regulator is, in general, in the form of a diaphragm spring loaded, upon one side of which, the pressure of the exhaust casing is applied, moving an electric switch which operates the synchronizing motor, so changing the relation of the valve opening to the position of the governor. It is, of course, essential that machines so regulated be caused to drive an alternating current generator which is synchronizing on to a system which is at least twice as large as the capacity of this machine, the rest of the system maintaining the frequency. In this way, the high pressure valves may be opened and closed by the synchronizing motor and essentially constant pressure maintained in the exhaust.

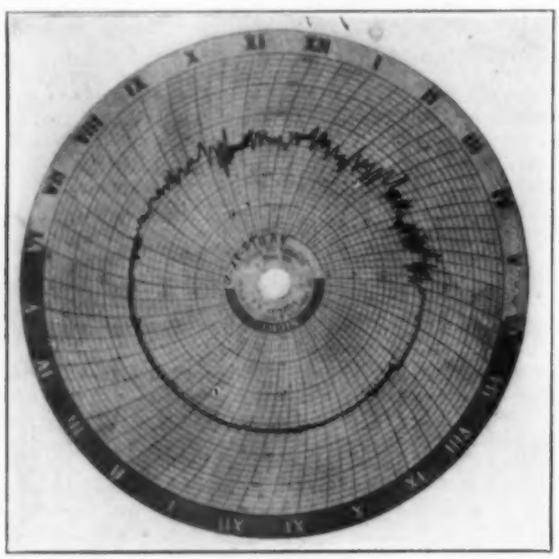


FIGURE 1

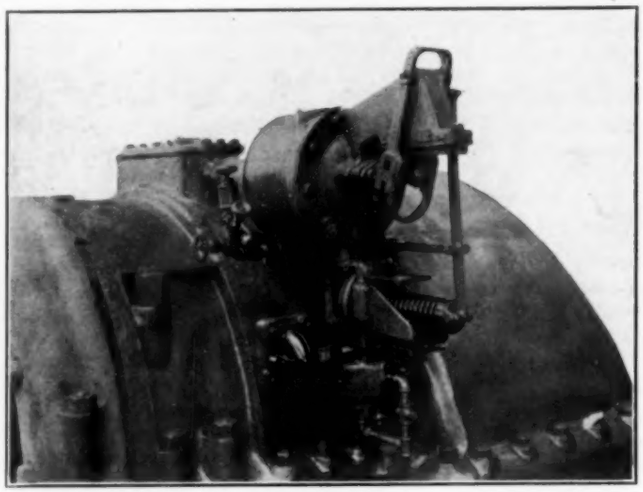


FIGURE 2

A typical curve is here shown, (Fig. 1) the lower portion of which shows the effect obtained when operating with hand regulation, and the upper portion with automatic back pressure regulation of the turbine. This was taken in a large industrial plant.

Next in order of simplicity to the straight back pressure machines, would be machines which may be condensing or non-condensing but from which steam may be extracted from one or more stages without the use of any regulating mechanism within the turbine other than the speed control which we have described. When steam is so bled, it is either taken at whatever pressure the stage pressure happens to be, or is reduced to some lower pressure by means of a suitable reducing valve. Great care has to be exercised in the selection of reducing valves which are expected to work in conjunction with the regulating devices of a turbine, and, in some cases, it has been necessary to design reducing valves for the particular requirement.

Automatic Pressure Regulation

Then there are those machines which are automatically pressure regulated and which are connected to a condenser. Here the steam at various pressures may be extracted from various stages of the turbine. The pressure is regulated by the opening and closing of a valve which is interposed between the extraction stage and the following stage. This valve takes the form of a grid which is opened or closed by an operating cylinder in response to the variations in pressure in the extraction stage. As this valve gradually closes under the action of the piston and operating mechanism, the flow to the condenser is reduced either to take care of a condition of constant extraction with reducing load or of increased extraction with a constant load. This closing of the grid is accomplished by the action of the operating cylinder, which is steam actuated and is of the double acting type. The position of the piston of this operating cylinder is determined

Read before the Affiliated Technical Societies of Boston on December 11.

by the position of the diaphragm, on one side of which the pressure from the extraction stage is applied. The other side of the diaphragm is spring loaded with an adjustable hand wheel to vary the pressure.

As with the speed governor which has been described, restoring or stabilizing mechanism is used with this operating cylinder to prevent over-travel. (Fig. 2). The hand wheel may be replaced by mechanism operated by a small motor for control of extraction pressure at a remote point. It is of course, in this case not necessary to have the generator

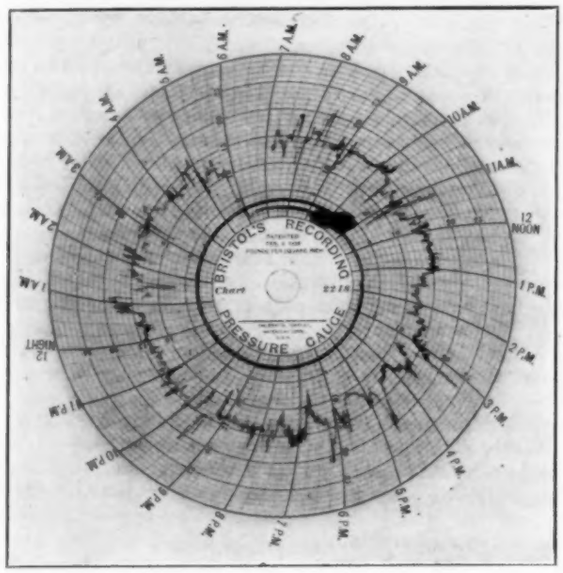


FIGURE 3

of this turbine synchronized to the system because varying loads may be carried at will, the balance of the steam not required by the extraction line being passed to the condenser automatically, which is not, of course, possible in the case of straight back pressure units.

Fig. 3 & 4 show the results obtained from such a mechanism. The former curve shows pressure regulation obtained by hand reducing valve operation and the latter the improvement obtained when the automatic mechanism was installed. This type of control is known usually as a simple extraction mechanism.

There is no attempt made in this mechanism to prevent slight disturbances in the frequency of the turbine due to varying extraction demand or of the pressure of the extraction stage due to variation in electrical load demand. As will be seen from the various slight disturbances on the pressure chart where load changes of as much as 30% are made suddenly, there is no appreciable disturbance. Steam may be extracted in this order of turbine at any pressure from 1 or 2 lbs. up to as high as 200 lb.

Triple Crank Mechanisms

These are occasions when it may be detrimental to have even slight disturbances in speed of the unit due to changes in extraction steam demand, or variations in pressure due to change in electrical load demand, and to overcome these objections, what is known as the triple crank mechanism has been developed. In this way, it is possible not only to move the grid valve at the extraction stage so as to regulate the pressure of the extraction line, but at the same instant to move the high pressure valve in an opposite direction to that of the grid valve. By so doing, it is possible to so adjust the opening of the high pressure valve and the grid valve as to maintain the pressure in the extraction stage with a change in extraction steam demand without changing the total energy imparted to the turbine. Very large variations in steam demand at the extraction point can be taken care of with essentially no change in speed of the turbine. The mechanism will adjust itself so that, upon changes in electrical load demand, the extraction pressure is but very little affected.

This mechanism will also permit of mixed pressure operation, which is, of course, of extreme value where excess low pressure steam over that required by the industrial plant is available. The turbine will automatically operate on a maximum quantity of excess low pressure steam where such is available, economizing on the high pressure steam, but will automatically maintain essentially constant speed if the excess low pressure steam diminishes, by utilizing high pressure steam in place of it, the quantity of excess steam, of course, being determined by an increase in pressure in the extraction line over that at which the turbine mechanism was adjusted to extract. With the form of mechanism used on the more recent designs, it is possible to make adjustments to get the very finest pressure and speed regulation obtainable after the machine has been installed in the customer's plant. This could not be obtained with some of the earlier types.

The Most Modern Device

Probably the latest regulating mechanism on a turbine is that which, not only has to maintain essentially constant speed, but also essentially constant pressure in more than one stage of the turbine. In accomplishing this, two grid valves are assembled in the turbine. Here steam may be extracted at two widely varying pressures, say 100 lb. from an early stage and 10 lb. from a later stage, the remainder of the steam passing off to the condenser. In this case, the control could either be by steam extraction where each of the grid valves is moved independently by its own pressure regulating mechanism, or the two grid valves and the speed governor may have to be interlocked so that the variation in steam demand from either of the extraction points may be varied without disturbing the pressure in the other one and without disturbing the frequency of the machine; or the electrical load may be changed without disturbing the pressure in either of the extraction stages. To accomplish this, much more intricate mechanisms are necessary.

In laying out an industrial plant in which extraction steam has to be used, it is very necessary that careful consideration be given to the types of steam reducing valves if they are to be used in conjunction with the automatic devices of the turbine. It has been found necessary in some instances for us to design and build our own power operated pressure regu-

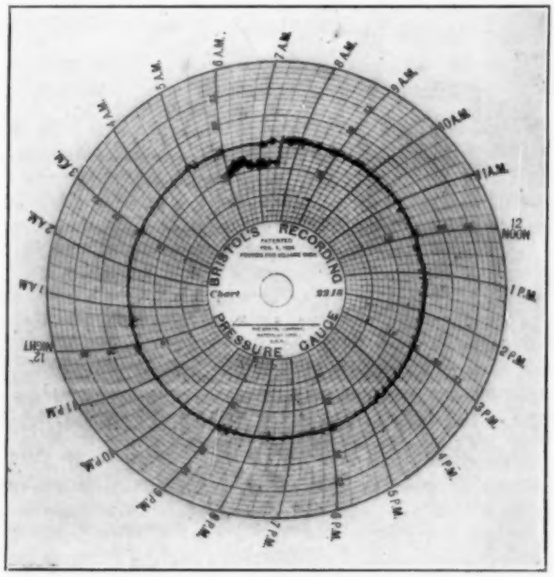


FIGURE 4

lating valves so that interference between the reducing valve and the turbine mechanism will not occur. Valves of this kind have been built with the pressure diaphragms spring loaded operating a pilot valve of the operating cylinder which moves the regulating valve. In some installations, it has been necessary to provide a magnetic device to automatically put the reducing valve out of operation, or into operation upon the accidental disconnecting of the back pressure turbine from the system. It is very essential for those having charge of the layout of systems to be sure to study the action of the

various regulating devices in order to steer clear of what may be very serious interference.

Besides having to regulate these turbines as extraction machines, we have also to be able to vary their speed over very wide ranges for such things as variation of frequency of system of sugar mills, water works pumps, or even turbine driven vessels. Many turbines have been built in which the speed may be varied from as low as 1/6 speed to full speed, the unit being able to carry at any of the speeds no load to maximum load with the same relative change in speed. Even

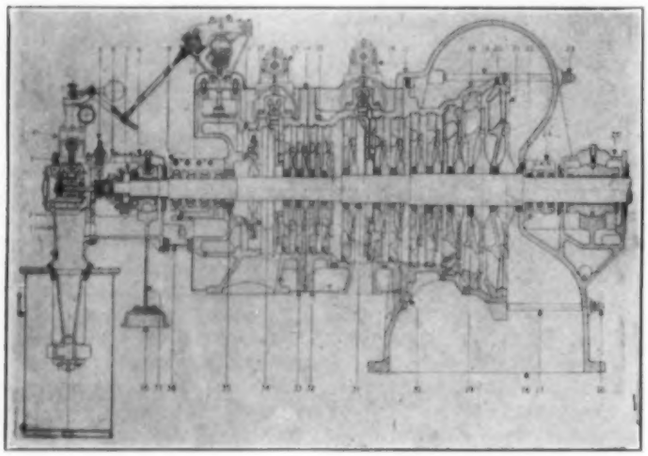


FIGURE 5

in this case the standard speed governor is not dispensed with, but acts in case of over-speeding of the turbine as a pre-emergency.

Besides being required to vary the speed of turbines over wide ranges, it is sometimes important on a straight speed governing device to obtain an absolutely constant speed over full power range of the turbine. This is accomplished in a mechanism, which, while being inherently stable and, therefore, having a certain small degree of width, becomes, after a short interval of time, absolutely isochronous. Thus its speed is maintained essentially constant, irrespective of the load.

Many Other Regulating Mechanisms

There are also cases where it is required to hold pressure constant within very small limits. Such mechanisms have been built which maintain a stage pressure essentially constant with very wide ranges in steam demand. This pressure regulating mechanism, while being inherently stable and having width, as any other pressure governing device, in a short interval of time becomes isodynamic.

There are many other forms of regulating mechanisms for different purposes, such as, for example, used for the control of turbine driven compressors, where constant volume, constant suction or constant pressure may be maintained on the intake or the discharge of the compressor by controlling the speed of the turbine. Such control mechanisms regulate within very fine limits.

In conclusion, we wish to emphasize the point that narrow pressure or speed regulations are not merely dependent upon the design of the governing mechanism. While it is possible to design the power and speed of the high pressure valve mechanism to respond satisfactorily to the maximum possible speed variations in the turbine which are limited by the WR^2 and rotation losses of the unit, yet when it comes to pressure control, the equivalent stabilizing factors are the capacity of the extraction steam lines, and the rate at which the demand of steam is changed. Under certain conditions it is possible to use slow types of control mechanisms for pressure control. Under other conditions it is necessary to use most highly sensitized types of direct acting pressure governors. Even then, it will be found necessary, in order to obtain stability of pressure in small capacity lines, to relatively broaden the pressure regulation in terms of varying extraction demands. Therefore, great care has to be exercised in deciding what type of regulating mechanism is required.

TECHNICAL ABSTRACTS

Vulcanization at Low Temperatures

Le Caoutchouc et la Gutta Percha, 1925, Pages 12577-9

Reference is had to the work done by Ostromislenski on this subject (*Journal of the Society, Ph. Chemical of Russia*, 1915.) In using a mixture of fatty amines, with the exception of the tertiary amines, and metallic oxides in the mixtures of rubber and sulphur, it was found that these mixtures vulcanized at the ordinary temperatures at the end of several weeks. A more rapid vulcanization was obtained by heating the rubber mixture to a temperature of 40 degrees C, the time consumed being about thirty minutes. In the place of the simple amines, condensation products with carbon disulphide may also be employed, such as the piperidylthiocarbamate of piperidine.

Another important observation which was made by this author and which has been more or less forgotten is that in the course of vulcanization at low temperatures it is possible to do away with the attention paid to the process when it is carried out at high temperatures, for low temperature vulcanization does not involve the danger of over-vulcanization which is always possible in the other process. The ultra-accelerators seem to possess what is known as "self-arresting' property when used at low temperatures.

It is well known that the first attempt to apply the Ostromislenski method in actual practice is met with considerable difficulty. The main consideration is that a fairly high temperature is obtained in the various operations to which the rubber mixtures are subjected before they are ready for vulcanization, such as mixing, calendering, etc. In certain cases the temperature will rise to as high as 80 degrees C. and vulcanization is premature when these accelerators are used.

Two general methods have been employed to get around this difficulty. One depends on the separation of the sulphur and the accelerator, and the other on the formation of the ultra-accelerator in the interior of the rubber, after the mixture has been formed into the shape of the article.

In the first method the fact is utilized that sulphur as well as the ultra-accelerators can diffuse throughout the rubber mass and penetrate into the interior no matter what their physical state may be, whether it is solid, liquid or gaseous. The speed at which this diffusion takes place is a function of the temperature.

Other process are known, having been recently patented, in which the sulphur and the accelerator are separated temporarily. It has been observed that when accelerators are used which are soluble in water, it is possible to vulcanize the object by immersing it in a hot solution of the accelerator. In this case the rubber article itself contains the sulphur and the oxide of zinc.

Accelerators which can be employed in this manner are those formed by the condensation of carbon disulphide with dimethylamine and with piperidine, and also ammonium ethyl and butyl xanthogenate, ammonium dithiopyromucate and ammonium dithiobenzoate, and finally ammonium benzomercaptolthioazol.

* * *

Making Crude Rubber

British Patent No. 233,654

Rubber of the dessicated latex type, but which is also soft, plastic and tacky, is manufactured by spraying rubber latex and applying a sufficiently high temperature during, or after the process has been concluded, in order to effect a pronounced darkening of the material. Although possessing all of the technical advantages of sprayed rubber, the product yields only 3.8 to 4.4 per cent of soluble matter when treated with acetone and from 1.54 to 5.6 of matter which is soluble in water, the latter extract giving from 16. to 21.7 per cent of ash. It resembles ordinary sprayed rubber in that its aqueous extract produces a heavy precipitate with a solution of basic lead acetate, but differs by giving only a slight precipitate with normal acetate.

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MARKETS

Cottons and Fabrics

NEW YORK, April 1, 1926

Two weeks ago the most important feature of the market was the covering by speculative shorts of a considerable volume of May contracts. The result was to impair materially the technical strength of the near position which, due to pressure and to the transferring of long accounts to July, declined to the level prevailing the previous week. The only bullish factor was the less favorable conditions for new crop preparations. Temperatures were unseasonably cold and further rains occurred in the states east of the Mississippi. It was, of course, too early in the season for these conditions to cause anxiety but they served to focus attention on the uncertainties surrounding next season's production, with the result that bearish confidence was restrained.

The report of the Census Bureau, indicating that during the seven months ended February 28 domestic consumption of lint cotton was 3,744,415 bales, against 3,503,792 bales in the corresponding period of last season, was offset by the unsatisfactory demand for finished goods. Although some lines continued to move in fair volume, it was largely due to price cutting, and, unless the situation improves, curtailment of production, which has already started in one district, appears likely to increase.

No development of sufficient importance to create a revival of speculative activity occurred during last week and operations were largely confined to the evening up of old commitments. Realizing was prompted by the continued poor demand for spot cotton, by the easier tendency of cotton goods' prices and by weakness in stocks and grains. However, shorts were evidently impressed by reports that heavy rains in the central belt had delayed new crop preparations and by the relatively large proportion of cotton recently brought to New York for delivery on contract which was believed to have been classified as untenderable.

In the opinion of A. Norden & Co., New York, the underlying strength of the situation is due primarily to the fact that hedge selling has been practically completed and that the long end of hedges is held, not to any extent by speculators, but by the trade who make moderate additions to their holdings on each slight decline. Exports continue to fall behind those of last year and neither advices from cotton textile centers nor the present discounts on distant months are conducive to any improvement.

New York Prices

	Open	High	Low	Close	March 15
May	18.80	18.90	18.78	18.87	18.73
July	18.30	18.40	18.29	18.38	18.26
October	17.66	17.78	17.63	17.72	17.55
December	17.38	17.45	17.32	17.40	17.22
January	17.32	17.35	17.22	17.31	17.20

Tire Fabrics

During the past two weeks the demand for tire fabrics was small. There was less than the usual seasonable buying response and various manufacturers were restrained in their fabric covering attitude. Production in tire fabric plants owned by rubber companies has shown a steady increase, but the fabric trade does not consider this as great importance when compared with the total of the industry's requirements. It is said that hardly 15 per cent of fabrics used in tires come from this source. The variety of grades promises to be as wide as last year.

CORD FABRICS

Combed Sakellarides		Nominal		
Combed Peeler	lb.	Nominal		
Carded Peeler		.46	@	.47
Combed Egyptian uppers	lb.	.62	@	—
Carded Egyptian uppers	lb.	.56	@	.58

SQUARE WOVEN

17¼-ounce Egyptian uppers, combed	lb.	Nominal		
17¼-ounce Egyptian uppers, carded	lb.	.54	@	.57
17¼-ounce Sakellarides, combed	lb.	Nominal		
17¼-ounce Peeler, carded	lb.	.45	@	—

Ducks—Most of the mill factors expressed satisfaction with the business done in the last two weeks. They explained that the period was an in-between covering one and that appreciable business could not be expected until May when large consumers should be ready to consider their fall requirements. For off grade single filling duck the 17 cent price was shaded up to ½ cent, although small lots of choice makes sold up to 19½ cents. Hose and belting duck was quoted 37 cents for clean stock, with terms and no freight allowed.

Burlaps—Buyers continued to bid considerably under sellers' asking levels, and as a result, the buying and selling ends of the market failed to come together in many instances. It was reported that there were only a limited number of offerings available, as operators showed no ready desire to make their goods the subject for counter offers which were unacceptable.

SHEETINGS

40-inch	2.50-yard	yd.	.13¾	@	.13⅞
40-inch	2.85-yard	yd.	.12	@	—
40-inch	3.15-yard	yd.	.13¼	@	—
40-inch	3.60-yard	yd.	.11	@	—
40-inch	3.75-yard	yd.	.09½	@	—
40-inch	4.25-yard	yd.	.08⅝	@	—

DUCKS

Belting	lb.	.37	@	—
Hose	lb.	.37	@	—
Enameling	lb.	.38	@	.43
Shoe Ducks	lb.	.41	@	.46
Single filling	lb.	.16½	@	.19½
Double filling	lb.	.20	@	.21

BURLAPS
(Carload Lots)

7½-ounce	40-inch	6.85	@	—
8 -ounce	40-inch	7.00	@	7.05
10 -ounce	40-inch	9.30	@	—
10½-ounce	40-inch	9.45	@	9.50

J. H. LANE & CO.

Tire Fabrics Cord Fabrics

Enameling Duck Drill Sheeting

Osnaburg and Special Constructions

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TIRE BUILDING MACHINES
The Banner Machine Co.
Columbiana, Ohio
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(Cannon Mills, Inc.)
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327 S. La Salle St. Chicago

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Carrier Engineering Corporation
750 Frelinghuysen Ave. Newark, N. J.

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Rubber Working Machinery
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LAWRENCE & CO.
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Boston, Philadelphia, Chicago, St. Louis, San Francisco

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CHICAGO CLEVELAND BROOKLYN

FABRICS—Stockinets, Jersey Cloth and Special Fabrics for the Rubber Industry.
U. S. Knitting Co., Inc,
Pawtucket, R. I.

THE MARKET PLACE Section Continued on Second Page Following.

Reclaimed Rubber

NEW YORK, April 5, 1926

Demand for reclaimed rubber showed little improvement in the last two weeks, due probably to slackness in tire manufacturing caused by the late spring. Reclaimers are operating at full capacity to meet calls for tire and tube grades and in anticipation of a heavy demand which is expected to begin within the next few weeks. Interest in the use of reclaimed rubber as a substitute is growing by leaps and bounds.

Friction (Uncured)				
No. 1	lb.	.48	@	.50
No. 2	lb.	36	@	.38
High Tensile Black				
Super-Reclaim No. 1	lb.	.29	@	.30
" " No. 2	lb.	.19½	@	.20
Shoe				
Unwashed	lb.	.10½	@	.10⅝
Washed	lb.	.12¾	@	.13
Tube				
No. 1 (Floating)	lb.	.28	@	.29
No. 2 (Compounded)	lb.	.19	@	.19½
Tires				
Black, unwashed	lb.	.10⅝	@	.11
Black, washed	lb.	.12	@	.12¼
Black, selected tires	lb.	.12½	@	.12¾
Dark Gray	lb.	.16½	@	.16¾
Light Gray	lb.	.17¼	@	.17½
White	lb.	.21½	@	.22
Truck, Heavy Gravity	lb.	.10½	@	.10¾
" Light Gravity	lb.	.11	@	.11¼
Miscellaneous				
Mechanical Blends	lb.	.08	@	.09
Red, High Grade	lb.	.21	@	.21½

Scrap Rubber

NEW YORK, April 2, 1926

The scrap rubber market has been very quiet during the past fortnight. Reclaimers' ideas as to prices were lower than those of most dealers, and as a result the former continued to stay out of the market, except for small lots which were obtained at concession in some cases from small dealers. In some instances reclaimers' bids were lower than prices scrap dealers had to pay. It is expected that business will improve somewhat within the next three weeks.

Auto tire peelings		.01½ @	.01⅝
Standard White auto	ton	42.50 @	45.00
Mixed auto	ton	23.00 @	24.00
Bicycle tires	ton	15.00 @	17.00
Clean solid truck tires	ton	37.00 @	40.00
Boots and shoes		.01¾ @	.02
Arctics, untrimmed		.01 @	.01⅛
Arctics, trimmed		.01¼ @	.01⅜
Inner tubes, No. 1		.08⅛ @	.08¾
Inner tubes, No. 2, compounded		.07¼ @	.07½
Air Brake Hose	ton	24.00 @	25.00
Rubber hose	ton	15.00 @	17.00

Crude Rubber

NEW YORK, April 1, 1926

Two weeks ago trading was not very active in the local market, but the tone was good, with no anxious sellers in any quarter. Some business was done in nearby positions, notably those ranging through June deliveries. The 19th was a very quiet day; brokers reported that it was impossible to bring buyers and sellers within a cent of each other. Prices on the street sagged about one cent a pound, with March ribs available at 61 cents at the close and April/June offered at 60½ cents. Buyers were fully 1½ cents below these levels.

The market continued dull but firm for the next few days. Business on the Rubber Exchange of New York showed a little more life but there was no tendency to bid rubber up. On the street, business was almost at a standstill. More definite reports regarding the London trade agreement on the selling of rubber below 30d a pound were available on the 24th. It was said that a fairly tight combination involving at least nine operators was in effect. The reports brought out more buying interest in New York and buyers advanced their views slightly, but failed to shake the firm position of sellers. Spot could be bought for 60 cents at the close and March at 59½ cents. Buyers were about ½ cent under these levels.

Actual business was not very heavy either in the street or on the exchange the next day. Outside spot rubber was held at 60 cents, with March through June quoted at 59½. July/Sept. was quoted at 58½ cents but there was little interest in either buying or selling beyond the June position.

Easier prices in the London market early in the day led to a considerable volume of buying on the 26th, especially on the Rubber Exchange. Outside buying was not as pronounced. Later advices reported a turn to firmness in London and slackened trading in the local market, although the close was fairly active. The flurry of buying showed clearly the tendency of the local trade to take advantage of lower prices. The market was steady and trading light the next day; a little disposition to trade was in evidence.

Lack of inquiry was again a feature in a quiet but steady market on the 30th. Despite inability to sell at prevailing levels, holders were not revising prices downward to any extent. However, it was not thought that this betokened any great faith in the future position. It was said to be more likely that with interest centered in the nearby positions, the firmness and lack of selling interest abroad frightened timid operators in New York from taking a stand as active sellers. Factory demand was also a problem. It was thought that there should be some good business in the near future, but most sellers were very dubious as to the volume of trading possible within the next few months.

Better business was reported yesterday and most of the early recession in values was regained before the close. In the outside market spot was quoted at 58 cents and the same level prevailed for April. May/June could be obtained for 57½ cents.

NEW YORK MARKET

Plantations—			
Ribbed Smoked Sheets			
Spot	.58	@	.59
April	.58	@	.59
May/June	.58	@	.59
July/Sept.	.57	@	.58
Oct./Dec.	.56	@	—
First Latex, crepe spot	.59	@	.60
Amber Crepe, No. 2, spot	.57	@	—
" " No. 3	.56	@	—
" " No. 4	.55	@	—
Brown Crepe, Rolled	.53½	@	—
" " Clean, thin	.56	@	—
" " Specky	.54	@	—
Pontianac—			
Bangermassin	Nominal		
Palembang	Nominal		
Prime Pressed	Nominal		
Sarawak	Nominal		
Paras—			
Up-river Fine	.52½	@	.53½
" Medium	.41	@	.43
" Coarse	.36½	@	.38
Acre Bolivian, fine	.50	@	.52
Tapajos, fine	.45	@	.47
Islands, Fine	.43	@	.45
Cut Beni Bolivian, fine	.51	@	.53
Caucho Ball—			
Upper, shipment	.40	@	.42
Centrals—			
Corinto, scrap	.35	@	—
Esmeraldo, sausage	.36	@	—
Guayule, w and d	.38	@	—
Africans—			
Benguela, No. 2	Nominal		
Congo, upper, black	Nominal		
" " red	Nominal		
Kassai, Prime Red	Nominal		
Balata—			
Block, Columbia	.65	@	—
" Cuidad	.63	@	—
Surinam, sheet	.72	@	—
Gutta Percha—			
Siak	.33	@	—
Red Macassar	$3.00	@	—
Chicle—			
Mexican, Yucatan	.58	@	—

LONDON MARKET

Standard Ribbed Smoked Sheets—	
Spot	29 d
April	28¾
May/June	28½
July/Sept.	27½
Oct./Dec.	27¼

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—	
Spot	27 d
April	27
May/June	26⅝
July/Sept.	26

Closing Prices on Rubber Exchange of New York, Inc.
MARCH 15 TO MARCH 31

	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	SALES*
15	61.40[2]	60.90[1]	60.30[2]	59.70[1]	59.00[2]	58.50[2]	58.00[1]	57.30[1]	57.00[2]	56.50[2]	56.00[2]	105
16	60.10[1]	59.40[1]	58.80[1]	58.20[1]	57.80[1]	57.40[2]	56.80[2]	56.20[2]	55.10[2]	54.50[2]	54.50[2]	239
17	60.00[2]	59.40[2]	58.90[2]	58.30[1]	57.60[2]	57.00[2]	56.50[2]	56.00[2]	55.00[2]	54.00[2]	54.00[2]	198
18	61.50[4]	61.00[2]	60.10[4]	59.80[2]	58.70[4]	58.10[4]	57.50[2]	57.00[4]	56.50[4]	56.00[4]	55.50[4]	147
19	60.50[3]	60.30[2]	59.70[4]	59.20[1]	58.70[4]	58.20[4]	57.50[4]	56.60[4]	55.80[2]	55.80[2]	55.00[4]	64
20	61.00[4]	60.70[2]	60.20[4]	59.70[2]	59.20[4]	58.70[4]	58.20[4]	57.60[2]	57.00[2]	56.50[2]	56.00[2]	21
22	61.00[4]	60.80[2]	60.20[4]	59.70[1]	59.20[4]	58.70[4]	58.20[4]	57.60[4]	57.00[2]	56.50[4]	56.00[4]	36
23	60.10[4]	59.60[1]	59.10[4]	58.60[2]	58.00[4]	57.50[2]	57.00[4]	56.50[4]	56.00[2]	55.50[2]	55.00[2]	92
24	60.00[4]	59.50[1]	59.00[4]	58.50[1]	58.00[4]	57.20[4]	56.80[4]	56.20[4]	55.50[2]	55.00[4]	54.00[4]	187
25	59.30[4]	58.70[2]	58.30[2]	57.80[2]	57.40[4]	57.10[1]	56.50[4]	56.00[4]	55.40[4]	55.00[4]	54.50[4]	116
26	59.00[4]	58.70[2]	58.10[4]	57.40[1]	57.00[2]	56.50[4]	56.00[4]	55.50[4]	54.80[4]	54.30[4]	53.90[4]	226
27	59.60[2]	59.10[2]	58.60[2]	58.20[2]	57.50[2]	57.00[2]	56.50[2]	56.00[2]	55.50[2]	55.00[2]	54.50[2]	36
29	59.10[4]	58.60[1]	58.10[4]	57.70[1]	57.20[4]	56.80[2]	56.30[4]	56.00[4]	55.90[2]	55.80[4]	55.30[4]	104
30	58.80[4]	58.30[2]	57.80[4]	57.40[2]	56.80[4]	56.20[2]	55.50[4]	55.30[4]	55.00[2]	55.00[2]	54.50[2]	124
31	58.50[4]	58.00[4]	57.50[4]	56.90[2]	56.60[4]	56.20[4]	55.90[4]	55.40[4]	55.00[2]	54.50[4]	54.00[4]	182

(1) trading. (2) asking. (3) bid. (4) nominal. (*) in lots of 2½ tons each.

The Market Place

3.

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YOUR NAME
in this space would be seen by Buyers, Chemists, Engineers and Executives in all rubber plants.
Write for full information

THE MARKET PLACE Section Continued on Second Page Following.

CHEMICALS & COMPOUNDING INGREDIENTS

Accelerators — Colors — M.R. — Compounding Ingredients Softeners — Vulcanizing Ingredients — Rubber Substitutes

NEW YORK, April 5, 1926.—Producers and dealers in compounding ingredients for the rubber industry report on a whole an easiness which results directly from the lessened production of tire factories. Accelerators are moving slowly, manufacturers evidently being satisfied with small shipments. Whether they are expecting a decided change in the prices of organics based on the outcome of the recent suit on DPG and TPG could not be determined. Carbon black stocks have been increased slightly by lack of large shipments but prices are firm and demand is again nearing normal. The whole list is showing improvement and leading factors are optimistic as to the future. Prices follow:

ACCELERATORS

Organic			
Aledhyde ammonia, crystals	lb.	.82 @	—
Aniline oil, drums	lb.	.17 @	.17½
Crylene	lb.	.70 @	—
paste	lb.	.50 @	—
Di-Ortho-Tolylguanidine	lb.	1.05 @	1.08
Diphenylguanidine	lb.	.85 @	.88
Ethylidene aniline	lb.	.60 @	.65
Excellerex	lb.	.35 @	.40
Formaldehyde-Aniline	lb.	.40 @	.42½
Grasselerator 102	lb.	.80 @	.82
Grasselerator 552	lb.	4.80 @	5.00
Grasselerator 808	lb.	1.50 @	1.75
Heptene	lb.	.55 @	—
Hexamethylene-tetramine	lb.	.80 @	.82½
Monex	lb.	4.00 @	5.00
Paraphenylenediamine	lb.	1.25 @	1.30
Piperidine-Piperidyldithio-Carbamate	lb.	4.80 @	5.00
R & H 50	lb.	.60 @	—
Super-Sulphur No. 1	lb.	.50 @	—
Super-Sulphur No. 2	lb.	.18 @	—
Tensilac, No. 41	lb.	.65 @	—
Thiocarbanilide, kegs	lb.	.28½ @	—
Trimene	lb.	.75 @	—
base	lb.	1.20 @	1.35
Triphenylguanidine	lb.	.70 @	.73
Tuads	lb.	4.50 @	5.00
Vulcone	lb.	.75 @	.79
Zimate	lb.	5.00 @	—
Inorganic			
Lead, sublimed blue	lb	.10 @	.10½
Lead, white	lb.	.10¾ @	—
Litharge, domestic	lb.	.11¾ @	.12½
Magnesia, calcined,			
light	lb.	.10 @	—
extra light	lb.	.40 @	.45
heavy	lb.	.04½ @	.05

COLORS

Blacks			
Arrow "Aerfloted"	lb.	.08½ @	.13
Bone Black	lb.	.05½ @	.11
Carbon "	lb.	.09 @	.13
Drop "	lb.	.07½ @	.14
Ivory "	lb.	.12 @	.45
Lamp "	lb.	.12 @	.40
Microncx	lb.	.10 @	.14
Thermatomic carbon	lb.	.05 @	—
Blues			
Prussian	lb.	.32 @	.34
Ultramarine	lb.	.08 @	.35
Browns			
Sienna, Italian	lb.	.04 @	.14
Umber, Turkey	lb.	.04 @	.06
Greens			
Chrome, light	lb.	.28 @	.31
medium	lb.	.30 @	.32
dark	lb.	.31 @	.33
commercial	lb.	.09 @	.10
Chromium Oxide, bbl.	lb.	.30 @	.31
Reds			
Antimony			
crimson, 15/17	lb.	.27 @	—
sulphur free	lb.	.48 @	.50
vermillion 15/17	lb.	.37½ @	—
golden, 15/17 F.S.	lb.	.16 @	—
pentasulphide,			
pure,	lb.	.33 @	.35
15/17 F.S.	lb.	.26 @	.30
Indian English	lb.	.11 @	.15
Oximony	lb.	.13¼ @	—
Para toner	lb.	.80 @	.90
Red oxide, reduced	lb.	.11 @	—
pure	lb.	.12 @	.14
Blue Ridge	lb.	.12 @	.14
Toluidine toner	lb.	1.80 @	2.10
Venetian red	lb.	.02¼ @	.05½
Vermillion, quicksilver, English	lb.	1.45 @	1.50
Whites			
Albalith	lb.	.05⅝ @	.06⅛
Lithopone, Akcolith	lb.	.05⅝ @	.06
Lithopone, Azolith	lb.	.05⅝ @	.06⅛
Zinc Oxide—American Process			
XX red	lb.	.07½ @	.07¾
Kadox,			
black label, kegs	lb.	.10⅝ @	.11¼
blue " " "		.09⅝ @	.10⅛
red " " "		.08⅝ @	.09⅛
American Azo:			
ZZZ (lead free)	lb.	.07¼ @	.07¾
ZZ (under 5% leaded)	lb.	.07 @	.07½
Zinc Oxide—French Process			
White seal	lb.	.12⅝ @	—
Green seal	lb.	.11⅛ @	—
Red seal	lb.	.10⅛ @	—
Yellows			
Chrome	lb.	.17½ @	.18
Ocher, French medium	lb.	.03¼ @	.03⅝
domestic	lb.	.01¾ @	.02½

COMPOUNDING MATERIALS

Aluminum Flake			
(f.o.b. plant)	ton	21.85 @	24.50
hydrate light	lb.	.16 @	.17
Ammonia carbonate	lb.	.10 @	.10½
Are-O Sel	ton	8.00 @	11.00
Asbestine	ton	15.50 @	18.50
Barium carbonate	ton	48.00 @	50.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color,	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	34.00
Basofor	lb.	.04½ @	—
Blanc fixe dry f.o.b. works	lb.	.03¾ @	.04
Carrara filler	lb.	.01¾ @	.02
Catalpo (fact.)	ton	38.00 @	40.00
Chalk	lb.	.02½ @	.04½
Clay, China, domestic	ton	15.00 @	25.00
Aerfloted Suprex	ton	20.00 @	30.00
Dixie	ton	20.00 @	35.00
Blue Ridge, Dark	ton	9.00 @	—
" " Light	ton	12.00 @	—
Langford	ton	12.00 @	22.00
Mineral Flour,			
c. l. fob mine	ton	17.00 @	20.00
Seminole,			
c. l. fob mine	ton	16.00 @	—
Glues, extra white	lb.	.20 @	.29
medium white	lb.	.18 @	.24
common bone	lb.	.12 @	.14
Graphite flake, bbls.	lb.	.06½ @	.12
Magnesia, carbonate	lb.	.08 @	.09
Mica, powdered	ton	65.00 @	80.00
Rotten Stone (powdered)	lb.	.02½ @	.04½
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	3.81 @	—
Talc, domestic	ton	16.00 @	18.00
Terra Alba	cwt.	1.25 @	2.00
Tripoli, white	lb.	.02 @	.02¼
Whiting, commercial	cwt.	1.00 @	1.15
English cliffstone	cwt.	1.50 @	—
Quaker	ton	13.00 @	15.00
Superfine	ton	10.00 @	12.00
Sussex	ton	8.00 @	10.00
Wood pulp XXX	ton	35.00 @	—
" " X	ton	25.00 @	—

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Granulated M.R.	ton	33.00 @	—
Hydrocarbon, Hard	ton	29.00 @	—
Hydrocarbon, Soft	ton	29.00 @	—
320/340 M.P. hydrocarbon (c. l. factory)	ton	47.00 @	52.00
300/310 M.P. hydrocarbon (c. l. factory)	ton	42.00 @	47.00
Paradura	ton	70.00 @	72.50
Robertson, MR, solid	ton	35.00 @	75.00
M.R. (gran)	ton	42.00 @	80.00

SOFTENERS

Acids			
Cresylic, 97%	gal.	.65 @	.72
95%		.63 @	.70
Muriatic, 20%	cwt.	.80 @	.90
Nitric, 36 degrees	cwt.	4.75 @	5.00
Sulphuric, 60 degrees	ton	10.00 @	11.00
66 degrees	ton	14.00 @	15.00
Tartaric, crystals	lb.	.29 @	—
Alkalies			
Caustic soda, 76%	cwt.	3.20 @	—
Soda ash, 58% C.L.	cwt.	1.43 @	1.45⅛
Oils			
Castor, No. 3 bbls.	lb.	.12¾ @	—
Corn, crude, bbls.	lb.	.11¼ @	—
refined	lb.	.13 @	—
Cottonseed, crude		.11 @	—
Glycerine, C.P. drums	lb.	.23½ @	.24
Linseed, Raw C.L. bbl.	gal.	.99 @	—
Liquid Rubber	lb.	.12 @	—
Moldrite	lb.	.05 @	.06
Palm, Lagos		.08⅜ @	.08⅝
Niger	lb.	.08 @	.08⅜
Peanut, domestic crude	lb.	.12½ @	—
Petrolatum, white		.11⅛ @	.11⅜
amber		.03⅞ @	.04
dark amber	lb.	.03⅝ @	.03¾
Pine, steam distilled	lb.	.60 @	.65
Rapeseed, refined	gal.	.84 @	.90
blown	gal.	1.00 @	—
Rosin, first rectified	gal.	.60 @	.62
second rectified	gal.	.65 @	.67
Soya Bean, crude		.13¼ @	.13½
Synthecite	lb.	.06 @	—
Tar, commercial	gal.	.30 @	.32
Resins and Pitches			
Tar Retort	bbl.	16.00 @	17.00
kiln burned	bbl.	15.00 @	16.00
Pitch, Burgundy	lb.	.06 @	.06½
coal tar	gal.	.05½ @	.06
pine	bbl.	8.00 @	9.50
Rosin, grade K	bbl.	15.40 @	—
Solvents			
Alcohol denatured,			
No. 1 bbls.	gal.	.34 @	.47
Benzol, 90%	gal.	.24 @	.29
pure		.23 @	.28
Carbon bisulphide	lb.	.05½ @	.06¼
tetrachloride	lb.	.06¼ @	.06½
Motor gasoline,			
steel bbls.	gal.	.19 @	—
Naptha, V. M. & P.	gal.	.14¾ @	—
Turpentine, spirits	gal.	1.02½ @	1.03½
wood	gal.	.90 @	.92
Waxes			
Beeswax	lb.	.62 @	.63
Carnauba, No. 1	lb.	.48 @	.49
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06 @	.06⅛
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffine White A.M.P.	lb.	.05¼ @	.05⅜
Yellow A.M.P.	lb.	.05⅛ @	.05¼

ANTI-OXIDANTS

VGB	lb.	.70 @	—

SUBSTITUTES

Black	lb.	.08½ @	.14
White	lb.	.10 @	.17
Brown	lb.	.10 @	.15
Brown factice	lb.	.10 @	.16
White factice	lb.	.10½ @	.17½

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.18 @	.20
Ethyl Chloride, Cyl.	lb.	.55 @	—
" " Drums	lb.	.45 @	—
Sulphur Chloride (drums)	lb.	.04 @	—
Sulphur flour			
Superfine, bags	cwt.	2.20 @	2.50
" bbls.	cwt.	2.60 @	2.90
100% pure, refined, bags	cwt.	2.35 @	2.90
bbls.	cwt.	2.90 @	3.15